Vol. 120, No. 12

PAPER TRADE JOURNAL

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March 22, 1945

Committee on Printing Makes Paper Awards

Contracts Are Let For Supplying Government Printing Office With Paper For Three Months' Period Beginning April 1—No Awards On Large Number of Items On Which No Bids Were Received.

WASHINGTON, D. C., March 19, 1945—Awards were made today by the Joint Congressional Committee on printing for paper for the use of the Government Printing Office for the three month's period beginning April 1. When the proposals were opened March 12, no bids were received and no awards were, therefore, made today on Nos. 6, 7, 8, 18, 21, 22, 24, 26, 29, 39, 42, 43, 46, 48, 49, 51, 52, 54, 60, 61, 61A, 62, 67, 69, 70, 71, 72, 73, 75, 84, 104, 108, 109, 120, 121, 122, 123, 125, 126, 128, 140, 141, 153, 160, 161, 168, 169, 183, 185, 192, 195, 201, 202, 204, 209, 211, 213, 219, 252, 254, 265, 280, 281, 303, 304, 351, 352, 360 and 367.

No. 1. Marquette Paper Corp. at ceiling price (600,000 pounds); Old Dominion Paper Co., 2.925 cents (900,000 pounds).

No. 2. Bermingham and Prosser Co., 5.38 cents.

No. 3. Marquette Paper Corp., 7.94 cents.

No. 4. Marquette Paper Corp., 7.94 cents.

No. 5. Marquette Paper Corp., 7.94 cents.

No. 9. Marquette Paper Corp., 7.53 cents.

No. 10. Barton, Duer and Koch Paper Co., 7.40 cents.

No. 19. Paper Corp. of U. S., 9.24 cents.

No. 20. Wilcox-Walter-Furlong Paper Co., 8.14 cents (500,000 pounds).

No. 23. Graham Paper Co., 8.81 cents.

No. 27. Whitaker Paper Co., 17.10 cents.

No. 33. R. P. Andrews Paper Co., 7.85 cents (200,000 pounds).

No. 34. Central Ohio Paper Co., 7.31 cents.

No. 37. Barton, Duer and Koch Paper Co., 6.47 cents (300,000 pounds)

No. 38. Barton, Duer and Koch Paper Co., 5.87 cents.

No. 41. Consolidated Water, Power and Paper Co., 6.565 cents.

No. 44. Marquette Paper Co., 5.75 cents.

No. 45. R. P. Andrews Paper Co., 7.24 cents (400,000 pounds).

No. 47, Aetna Paper Co., 9.63 cents.

No. 50. R. P. Andrews Paper Co., 12.83 cents.

No. 53. Frank Parsons Paper Co., 6.40 cents.

No. 55. R. P. Andrews Paper Co., 7.82 cents (300,000 pounds).

No. 56. Whitaker Paper Co., 7.44 cents (400,000 pounds)

No. 57. R. P. Andrews Paper Co., 7.59 cents (500,000 pounds); Paper Corp. of U. S., 7.49 cents (200,000 pounds).

No. 58. R. P. Andrews Paper Co., 6.99 cents (300,000 pounds).

No. 59. Marquette Paper Corp., 8.54 cents (no. 32) (600,000 pounds); 8.09 cents (no. 36).

No. 61B. Barton, Duer and Koch Paper Co., 8.83 cents.

No. 63. Frank Parsons Paper Co., 12.89 cents.

No. 64. Aetna Paper Co., 15.91 cents (no. 32); 15.41 cents (no. 40).

No. 65. Stanford Paper Co., 15.48 cents (no. 48) (100,000 pounds); 15.38 cents (no. 56) (100,000 pounds).

No. 66. Barton, Duer and Koch Paper Co., 18.00 (100,000 pounds); Mudge Paper Co., 18.25 (no. 32) (75,000 pounds); 17.75 (no. 40) (75,000 pounds).

No. 68. Franklin Research Co., 19.425 cents (156,000 pounds); Stanford Paper Co., 17.25 cents (100,000 pounds); 19.00 cents (66,000 pounds); Barton, Duer and Koch Paper Co., 18.75 cents (100,000 pounds).

No. 76. Paper Corp. of U. S., 24.74 cents (50,000 pounds); Stanford Paper Co., 21.00 cents (40,000 pounds).

No. 77. Paper Corp. of U. S., 23.74 cents.

No. 78. Old Dominion Paper Co., 19.997 cents (50,000 pounds).

No. 85. Barton, Duer and Koch Paper Co., 26.00 cents.

No. 101. Rejected.

No. 102. Rejected.

No. 103. Rejected.

No. 105. Aetna Paper Co., 17.39 cents.

No. 106. Aetna Paper Co., 14.39 cents (300,000 pounds).

No. 107. Aetna Paper Co., 14.39 cents (300,000 pounds)

No. 110. Aetna Paper Co., 15.09 cents.

No. 111. Aetna Paper Co., 15.09 cents.

No. 151. Wilcox-Walter-Furlong Paper Co., 8.65 cents.

No. 152. Wilcox-Walter-Furlong Paper Co., 8.65 cents.

No. 154. Aetna Paper Co., 14.39 cents (100,000 pounds).

No. 155. Aetna Paper Co., 14.39 cents (100,000 pounds).

No. 156. Aetna Paper Co., 15.09 cents.

No. 176. Barton, Duer and Koch Paper Co., 25.15 cents.

No. 177. Barton, Duer and Koch Paper Co., 25.15 cents.

No. 184. Whitaker Paper Co., 7.67 cents.

No. 189. Barton, Duer and Koch Paper Co., 15.47 cents (100.000 pounds).

No. 190. Barton, Duer and Koch Paper Co.,

(Continued on page 34)

Transportation Situation Continues Tight

Stringency In Freight Cars Is Reflected In February Production and Shipment of Newsprint In Canada — Supply of Pulpwood Although Somewhat Improved, Still To Present Many Problems.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., March 19, 1945—The tight transportation situation which has been interfering with the shipment of newsprint to the United States, still continues; in fact, it has reached such proportions that, as a temporary measure, the authorities have found it necessary to limit box car freight shipments to east coast ports over the lines of the Canadian National Railways, though Canadian Pacific lines are not affected by the order. For the time being freight shipments by boxcar on the national system to east coast ports are being confined to the highest priority essential goods, such as war materials and perishables, but the hope is held out that there may be some relief by the end of the month.

The stringency in the freight car situation is reflected in the February figures of production and shipments, just released. These show that while production of newsprint in Canada for the month amounted to 239,661 tons, shipments totalled 217,220 tons, of which 179,565 tons went to the United States. At the same time there was a marked falling off in shipments overseas, shipments by Canadian mills totalling 22,134 tons, a reduction of more than 40% from a year ago and the lightest for any month since August of 1943.

As regards shipments to the United States, the Newsprint Association of Canada states that shipments from Canada in the first two months of this year represented 73.0% of total United States supply, as compared with 59.0% in the same period of 1939. Shipments from Newfoundland represented 3.0% of the total, as against 2.0% in 1939, while shipments from United States mills represented 24.0% of U. S. supply, as compared with 29.0%. Furthermore, the association adds, there were no imports from Europe into the United States in the first two months of 1945, whereas in 1939 they represented 10.0% of total United States supply.

Transport officials here say that the emergency in the freight car situation will not last long, and meanwhile they are doing everything possible to co-operate with the mills in forwarding newsprint supplies to the United States.

The Pulpwood Situation

With the spring thaw coming a week or more ahead of time, winter woods operations are rapidly coming to a close. It is too early yet to assess the results in respect to the replenishment of the stock piles of pulpwood and lumber, and in any case this will be largely dependent on the success of the river drives. The woods forces of the various paper companies, however, are all well prepared for this next phase of their operations.

For some time past the study of river driving has been the main research project of the Woodlands Section of the Canadian Pulp and Paper Association. The section's logging efficiency instructor last year spent the greater part of his time on the operations of member companies, giving instruction, mainly through illustrated lectures, to about 4,000 workers. He also assisted many members of the companies' personnel and jobbers in promotion of efficiency in logging. Handbooks on logging, prepared for the Section, were also used widely by the men in company and contractors' camps. Many companies have made marked advance along this line, two companies employing more than 25 instructors and one as many as 40.

First reports on logging results during the winter have come from the Maritime Provinces. According to the reports, as presented in the Bank of Montreal's monthly letter, woods operations have had to contend with much unfavorable weather in Nova Scotia and New Brunswick, and the estimate is given that results are as much as 25% below what had been hoped for.

Meanwhile, as regards lumbering generally, the federal Timber Controller says that lumber supplies in Canada after fighting ceases in Europe will be above peacetime averages, but will be insufficient to meet the demand. He bases this on the assumption that Canada would export about 50% of her timber production, and said that lumber is now regarded by the Canadian and United States Governments as "the No. 1 shortage" of all war materials needed by the United Nations. He expressed the belief that for domestic use this year more adequate supplies would be available than in any year since the outbreak of war, adding: "I believe the demand for lumber will remain strong for several years, and there is no reason to believe that the cessation of hostilities in Europe will bring about any immediate change in the lumber outlook for Canada."

Pulpwood Supplies "Somewhat" Improved

Harold Crabtree, president of the Howard Smith Paper Mills, says that although the supply of pulpwood has improved somewhat of late it still presents problems that require constant attention. As far as his company is concerned, he says, the chief of these problems is that the extreme shortage of labor has made it impossible to procure the normal requirements of peeled pulpwood. Accordingly, the company has been obliged to resort largely to the use of rough wood, which has not only entailed great increases in transportation charges, but has necessitated, at considerable capital cost, the installation of barking equipment at the company's mills in order to handle the type of wood.

He announced that construction of the company's lignite plastic plant, already described in these columns, is well advanced, and it is anticipated that operations on a semi-commercial basis will commence early this year.

Frank Barnicle Loses Son

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 19, 1945—Frank Barnicle, salesman for the Century Paper Company, Inc.; has the sympathy of all in the death of his son, Sergeant Frank Barnicle, Jr., gunner on a B-24, who was shot down over Germany February 24.

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Mill Employment Shows Fractional Decline

Wisconsin Industrial Commission Reports Small Drop In Workers and 1.6 Per Cent In Payrolls—Earnings Average $40.42 For 47.9 Hour Week — Marathon Century Club Meets — Other Late News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., March 19, 1945—Employment in Wisconsin paper mills during January showed a decline of 0.4% compared with the previous month, according to the monthly report released by the Industrial Commission of Wisconsin at Madison. The comparative figures in the number of workers employed were 23,000 and 23,100.

Weekly payrolls amounted to $930,000 in January, and $945,000 during the previous month, a decline of 1.6%. Weekly earnings averaged $40.42 for 47.9 hours, or 84.4 cents per hour.

In the Milwaukee metropolitan area 21 paper and allied products concerns reported 2,192 workers on the payrolls, a decline of 2.3%, compared with December, 1944. Payrolls averaged $85,233, a decline of 0.6%. Weekly earnings amounted to $38.88 for 45.4 hours, or 85.6 cents per hour.

To Manage Ordnance Division

C. W. Nelson will be general manager of the Kimberly-Clark Ordnance division, which expects to start production of its new contract, point detonating fuses by May. The fuse is a versatile, delayed action fuse which can be used on approximately 40 different types of heavy artillery shells.

Russ Johnson will be assistant general manager in charge of tooling, Clarence Lande will be superintendent, Lyall Stilp will be in charge of procurement, and Walter Mumme in charge of personnel. Bill Cramer will be chief engineer.

Labor Board Denies Mill Petition

The Sixth Regional War Labor Board in Chicago announced last week that the National War Labor Board has denied petitions of the Hoberg Paper Mills, Inc., of Green Bay, Wis., and two unions for review of a regional board ruling which disapproves of a 5-cent hourly wage increase agreed upon between the parties.

The regional board held the increase could not be approved on grounds of gross inequities as contended by the parties, since the company was paying a higher rate than the established base rate for pulp and paper mills in Wisconsin and Minnesota.

The unions were Paper Makers Local 57 and International Brotherhood of Pulp and Sulphite Workers Local 65. There were 525 workers involved.

Marathon Century Club Meets

The Marathon Corporation Quarter Century Club held its annual dinner meeting Sunday evening, March 11, at the Elks Club at Wausau, Wis. The members were guests of D. C. Everest, president and general manager.

Mr. Everest, who was presented with a life-size photograph of himself, spoke briefly on the program of the company, and presented 25-year certificates to 16 new members of the club, which now has 170 men and women on its rolls. More than 300 persons were present at the dinner, wives of the members being guests. Each woman was presented with a corsage.

Mr. Everest discussed plans for expansion in the postwar era and employment of returning servicemen. There are more than 900 former employes of Marathon serving with the armed forces.

John Stevens, Jr., serving as toastmaster, called upon Allen Abrams, a vice president of the corporation, and R. M. Altman, new president of the club, for short talks.

John Staege was elected vice president; Miss Nirena Hussong, secretary-treasurer, and John L. Radueche, Frank Christian and Frank C. Wendorf, committee members.

Wisconsin River Breaks Up Early

The earliest spring breakup in several years was underway Thursday and Friday of last week in the Wisconsin river. The average date is about March 25, according to engineers of the Wisconsin Valley Improvement Company, Wausau, Wis.

Although unseasonably high temperatures melted heavy layers of snow rapidly and considerable rainfall added to the runoff, no major flood conditions were indicated. Small streams overran their banks and the Wisconsin river rose approximately 3 feet by Thursday. As an example, Big Rib river at Rib Falls, Wis., which had a flow of 237 cubic feet on Wednesday, had increased to 3,384 cubic feet early Friday, the Improvement company reported. The company had been making preparations for the spring breakup for a number of weeks, and most of its reservoirs were virtually empty in preparation for the runoff.

Engineers at Marathon Corporation, Rothschild, Wis., said they expected the situation to be handled without difficulty, although heavy rainfall might speed the rapid disintegration of ice and create bothersome jams.

The Wisconsin Public Service Corporation's Ewing dam in Wausau had three electric generators in operation, and six gates in the dam were open—an unusual situation. Only two generators had been in operation since last summer because of low water. Gates were to be closed last weekend to store water from the runoff in the reservoir area. Gates in the Big Eau Pleine reservoir were closed last Thursday evening. Limited frost in fields enabled the ground to absorb much of the water.

Wausau Paper Mills Company, Brokaw, Wis., prepared to use sewage pumps to force flood water from the four buildings located near the river in the event water should rise rapidly.

Reports On State Tree Plantings

About a quarter billion trees have been planted in Wisconsin since 1911, according to the Wisconsin Conservation Department, which has pointed out that 40,000,000 trees were produced in the state's tree nurseries in 1940. Scarcity of labor due to war conditions reduced the distribution of young trees in the state's nurseries to about 10,000,000.

However, the department is looking forward to the return of normal times, and is increasing its seedlings to meet an expected enlarged demand for forest planting stock in the next few years.

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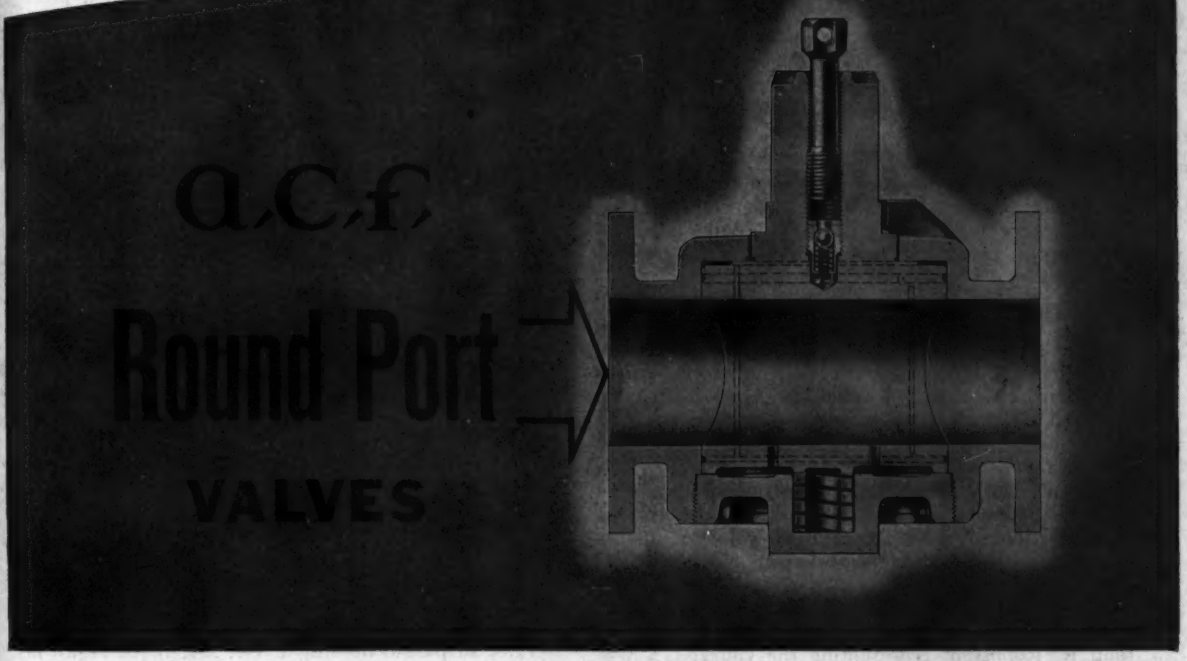

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The a.c.f. ROUND PORT is available in sizes ½" to 8", and is a specialty in the a.c.f. line of full pipe area rectangular port valves. Merely a minimum amount of lubricant is needed when installed and for servicing. In addition, the lubricant acts as a plastic head gasket, hence no auxiliary packing is required. Go-devils, swabs or other cleaning agents that will pass the pipe itself, will pass thru this round port valve. a.c.f. valves may be quickly dismantled and re-assembled. Design problems on both new and replacement work are simplified because the a.c.f. ROUND PORT may be installed *in any position* — and no special tools are needed. Available in wrench, spur, or worm gear types.

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Chicago Reports Paper Market is Confused

Difficulty In Obtaining Supplies Now Is Expected To Become Even Worse In Second Quarter—New Paper Salvage Drive Starts April 28 — Warns Users On Mail Changes — Other Late Market News.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., March 19, 1945—Conditions in the Chicago paper market continue in a confused state. Jobbing houses reported an increasing difficulty in getting anywheres near adequate supplies for their accounts while sales representatives found the second quarter of the year opening up in most complex fashion. There are many opinions in this city that the second quarter is likely to be the worst of all and that the third quarter may see some opening up of conditions. Part of this hope is obviously based on the near end of the German phase of the War but there are many who believe that actual improvement of a sort cannot be expected before late Fall—and then only of a very minor nature.

Specifically, all lines were quoted at the top as far as demand and prices were concerned. The "military papers" were increasingly in demand and backlogs of orders in every line had gone so far back as to make any real compilation "ridiculous."

Chicago Drives for Salvage Record

The waste paper trade in this area this week began to develop interest in the Spring Cleaning Day waste paper curb collection scheduled for April 28 in Chicago and surrounding cities and towns. A meeting of the Chicago Waste Paper Salvage Committee was held at the Morrison Hotel on March 13 at which community collection quotas were arranged on a basis of seven pounds per capita. The total goal will thus be 10,000 tons of waste paper to be collected in one day. Proceeds will go to the American Red Cross.

Raising of each community's assigned quota will be under direct supervision of salvage officials aided by field men from the WPB. At the March 13 meeting John R. Robinson, representing the Chicago Newspaper Publishers Association, announced appointments of several committee chairmen. Harold Shilling, president of the United States Paper Supply Company was appointed chairman of the finance committee and Joseph E. Marcus, representing the waste paper consuming mills, is to be chairman of the committee charged with getting sufficient trucks for pick-up purposes. Max Patinkon, Chicago waste paper dealer, is to be in charge of the waste paper dealer efforts.

At the same meeting it was reported that in the Middle West the average weekly collection of around 42,000 tons a week established nearly eight months ago, was a good 7000 tons a week less than was needed for 100 per cent production in this area. Although area mills have the facilities to produce more badly needed board for war needs, the materials still are short according to spokesmen from the waste paper trade.

Warn Users on Mail Changes

Of genuine interest to that part of the paper trade which provides letterheads and envelopes and merchandising materials is the statement made in Chicago this week that future postal policies of Congress should include consideration of rate changes for all classes of mail at one time instead of separate bills for changes of rates in fourth, third, second and first class matter. These suggestions were made by G. F. McKiernan, president of the National Council on Business Mail, speaking before the Chicago Industrial Advertising Association.

Mr. McKiernan pointed out that "the postal service is facing the greatest crisis in history because Congress is planning to raise postage rates on a piecemeal basis instead of considering in one bill change of rates for all classes of mail at one time.

"In fairness to the users of the mails who operate on yearly appropriations," said the speaker, "all contemplated changes should be divulged by the Post Office Department at one time and Congress should incorporate all such proposed changes in one bill. "Only on that basis," he concluded, "can business concerns figure where they stand."

Aurora Sets Scrap Record

On March 4, over a period of two and one half hours, the city of Aurora, Illinois, collected 250 tons of scrap paper filling seventeen freight cars. The Aurora Chamber of Commerce believes the job is the best done, all factors considered, in the entire country.

Joyce Observes Double Anniversary

Joseph Joyce, head of the Empire Paper Company, observed the fiftieth anniversary of the founding of this well known paper distributing firm, on March 1. He celebrated his own birthday, his eighty-fifth, on March 27 and the dual celebration has caused the local press to call attention to the fact that not only is the Empire organization one of the oldest in the city but that Mr. Joyce has a record of continuous service surpassed by only a few. Mr. Joyce began his business career in 1876 with Bradner Smith & Company and eventually organized the Empire Paper Company in 1895.

Schwarz Co. Opens Branch

The Schwarz Paper Company, well known Chicago distributors of paper, has recently established a branch of its operations in South Bend, Indiana, very close to the Illinois border. A. C. Gall, formerly vice president of the Central Ohio Paper Company, is to be in charge of the new operation which will be ready to take care of trade demands about April 1. The expansion is in line with a belief of the parent company that sound expansion is helpful in developing buying power and widening the scope of their distributive services.

Stein-Hall Co. Unify Operations

It is reported from the Stein-Hall & Company Chicago offices, that the Chicago unit and the Stein, Hall & Company, Inc., headquarters in New York City are now operating as a single unit for the major purpose of improving over-all national operations. It is reported that little or no change will be made in the management personnel which will continue as in the past.

More inside information on POWELL VALVES

This small size 200-pound "White Star" Bronze Gate Valve looks very much like the same type of valve in other makes. But back of it—back of every Powell Valve—is nearly a century of specializing in the manufacture of Dependable valves for Industry.

The result of this Powell "know how" is a line of valves ruggedly built to give long, uninterrupted service and require minimum maintenance. These are reasons why Powell Valves are the choice of leading industrial plants throughout the nation.

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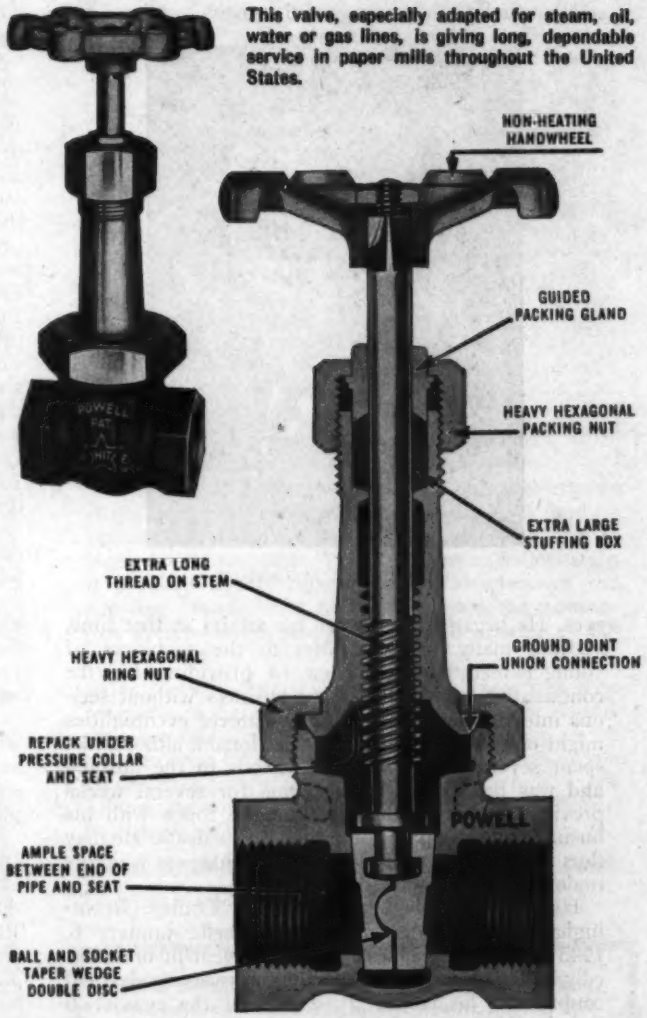
This valve, especially adapted for steam, oil, water or gas lines, is giving long, dependable service in paper mills throughout the United States.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REPACK UNDER PRESSURE COLLAR AND SEAT
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POWELL

Fig. 375
BRONZE "WHITE STAR" GATE VALVE

POWELL VALVES

George S. Macdonald, Publisher of the Paper Trade Journal, Dies

George Saxe Macdonald, president of the Lockwood Trade Journal Company, publisher of the PAPER TRADE JOURNAL, Lockwood's Directory of the Paper and Allied Trades and Tobacco, a weekly devoted to the manufacturing interests of the tobacco industry, died after a lingering illness March 18 at his home 79 Sutton Manor, New Rochelle, N. Y. He was aged 78 years.

Mr. Macdonald first began to show signs of failing health several years ago when he suffered a mild stroke which slightly impaired the vision in one of his

GEORGE SAXE MACDONALD

eyes. He began to rearrange his affairs at that time, shifting many responsibilities to the shoulders of younger men with the view of providing for the continuation of his publishing business without serious interruption regardless of whatever eventualities might occur. However, Mr. Macdonald, although he spent several rather lengthy periods in the hospital and was bed ridden at his home for several weeks previous to his death, kept in close touch with his business affairs up until the time of his death. He may thus literally be said to have died in harness which is undoubtedly as he would have it.

He was a widower, his wife Mary Louise (Brantingham) having died at New Rochelle January 6, 1945 after a long illness. This bereavement undoubtedly hastened his own end as they were a very devoted couple and he frequently expressed the conviction that in the event of his wife predeceasing him, he would not care long to out live her.

Mr. Macdonald was born at Whitestone, Long Island, N. Y., September 10, 1866, the son of Mason Allen and Mary Emma (West) Macdonald. He was educated in the public schools of Oyster Bay, Long Island, and New Brighton, Staten Island, New York City. His father was principal of a public school on Staten Island and greatly desired him to study medicine. For this purpose he entered the College of the City of New York, which was then located at the corner of 23rd street and Lexington avenue, to pursue a preliminary course. However, he remained here only briefly as his college career was ended by the separation from the institution of the whole section in which he was enrolled, because of an escapade committed by several members whose identity it was impossible to learn and segregate for individual discipline. The erstwhile student, however, in place of being depressed by the turn of events, was greatly pleased as he personally had no desire to practice medicine but preferred to follow a business career on which he launched himself immediately.

Mr. Macdonald founded the American Ormonde Cycle Company in 1887 and served as secretary of the company until 1890, when he became American manager at New York for the Raleigh Cycle Company, Ltd., Nottingham, England, until 1894. He was head of Macdonald & Co. exporters, New York, London and Hamburg, from 1897 to 1904, and entered the publishing business in 1905 as secretary-treasurer of the Motor Boat Publishing Company. He served as president of this company from 1924 to 1928, and was also president of the Radio Dealer Publishing Company from 1925 to 1928, and the Gibson Burnam Publishing Company from 1926 to 1928. He has been president and director of the Tobacco Trade Journal Company and the Macdonald Publishing Company since 1921, and of the Lockwood Trade Journal Company since 1923. In December, 1941 the Macdonald Publishing Company and Tobacco Trade Journal Company were consolidated with the Lockwood Trade Journal Company, Mr. Macdonald remaining as president of the Lockwood Trade Journal Company, Inc.

Although Mr. Macdonald never held any political office, he was greatly interested all during his life in public affairs. He was a staunch Republican.

His favorite recreation was yachting. Until a few years ago, he kept in commission on Long Island Sound a motor yacht on which he and his family practically spent the summer months and on which he entertained many friends.

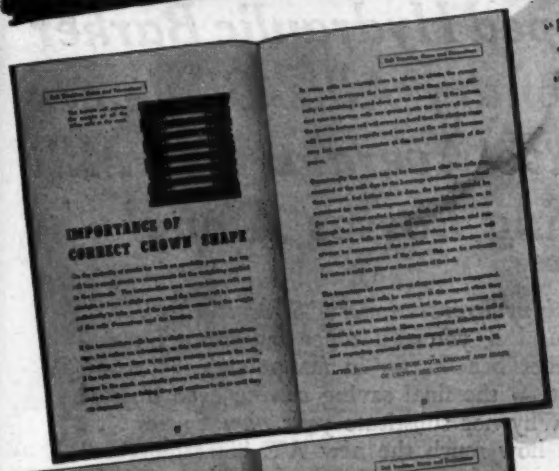
Mr. Macdonald lived in New Rochelle since 1893 with the exception of 1895 and 1896, when he resided in New York City. He has resided in Sutton Manor since May, 1912, when his present home was completed.

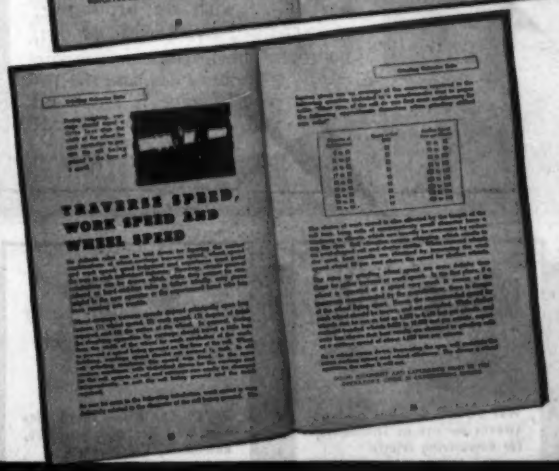
Mr. Macdonald is survived by his daughter, Blanche Macdonald Lockwood, wife of Henry A. Lockwood, residing in Scarsdale, and by his son, Allan Freeman Macdonald, of Petersville road, New Rochelle, and by four grandsons, George E. Lockwood, vice-president and treasurer of the Lockwood Trade Journal Company, of 2 Harmony drive, Larchmont, Henry A. Lockwood, Jr., of Honolulu, T. H., Lt. Allan F. Macdonald, Jr., U. S. A. and Gordon Macdonald, U. S. N., and also by four great-grandchildren, Katherine R. Lockwood, Jr., Barbara Louise Lockwood, George E. Lockwood, Jr., daughters and son of George E. and Katherine Morris Lockwood, and Allan F. Macdonald 3rd, son of Lt. A. F. Macdonald, Jr., and Helen Howell Macdonald.

The funeral services were held at 2 o'clock Tuesday afternoon, March 20 at the Moravian Cemetery Chapel, New Dorp, Staten Island. The interment was in the family plot in the Moravian Cemetery at New Dorp.

Here is the book

that paper mill men are talking about





"A splendid guide every mill should have and follow."

"Find it a great help in doing better job grinding rolls."

"Best article we have ever read on calender rolls."

"Helpful in keeping calenders in better shape."

"Most useful to our superintendent and master mechanic."

"Booklet so valuable we are anxious to make information available to a great many people here."

"Very interesting and instructive—would like 15 additional copies."

"Contains information of so much value would like to distribute eight or ten copies to our superintendents."

Once in a blue moon a book is published that is just plain helpful. This is such a book.

It contains no advertising. Instead, there are thirty-two pages of useful, helpful information telling how to avoid calender and calender roll trouble, and how to regrind rolls properly. Written in easy-to-follow style, it provides a sure cure for most calender and roll grinding "headaches." And what's more, the information applies to any make of roll, roll grinder or calender stack.

After looking over this book, many executives have written us for enough copies so that everyone responsible for calender operation and roll grinding in the mill can have his own book for ready reference. If you do not have a copy, why not write for one today? Just fill out the coupon and drop it in the mail. There is no charge, no obligation.

FARREL-BIRMINGHAM COMPANY, INC., ANSONIA, CONN.

Plants: Ansonia and Derby, Conn., Buffalo, N. Y.
Sales Offices: Ansonia, Buffalo, New York, Pittsburgh, Akron, Los Angeles

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Please send me a FREE copy of your booklet, A PRACTICAL GUIDE TO CARE OF CALENDERS AND CALENDER ROLLS. I understand that this will place me under absolutely no obligation.

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Farrel-Birmingham

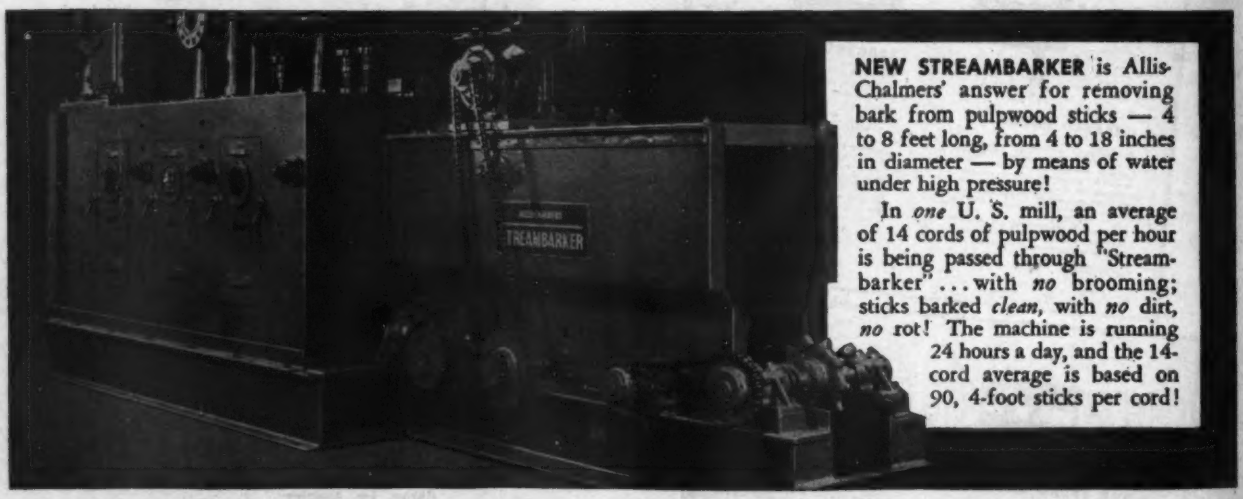
PULP AND PAPER MEN ARE "A Revolution in

First Commercially Developed Hydraulic Barker for Pulpwood . . . Revolutionary Allis-Chalmers "Streambarker" . . . Can Save Average U.S. Mill $69,000 a Year in Brooming Losses Alone!

LOOK AT THE FIGURES: Based on recent industry statistics, the average U. S. Pulp Mill uses 48,142 cords of "rough" pulpwood annually. Brooming losses run anywhere from 2% to 15%. 6% is typical, figures out to 2,888 cords. At $24 a cord, that means a total loss of $69,312 a year through brooming alone . . . *a loss which can be entirely eliminated with new revolutionary "Streambarker"!*

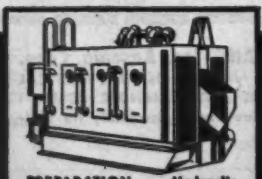
And if you add *other* important Streambarker benefits — in manpower, space and cost — the final saving can be even higher!

Why not substitute *your own* figures . . . see how much the new A-C "Streambarker" can save for *you!* Send for Bulletin B6341. ALLIS-CHALMERS, MILWAUKEE 1, WIS.



NEW STREAMBARKER is Allis-Chalmers' answer for removing bark from pulpwood sticks — 4 to 8 feet long, from 4 to 18 inches in diameter — by means of water under high pressure!

In *one* U. S. mill, an average of 14 cords of pulpwood per hour is being passed through "Streambarker" . . . with *no* brooming; sticks barked *clean*, with *no* dirt, *no* rot! The machine is running 24 hours a day, and the 14-cord average is based on 90, 4-foot sticks per cord!



PREPARATION — Hydraulic Barkers, Chip Screens, Saws, Slashers, Interplane Grinders.

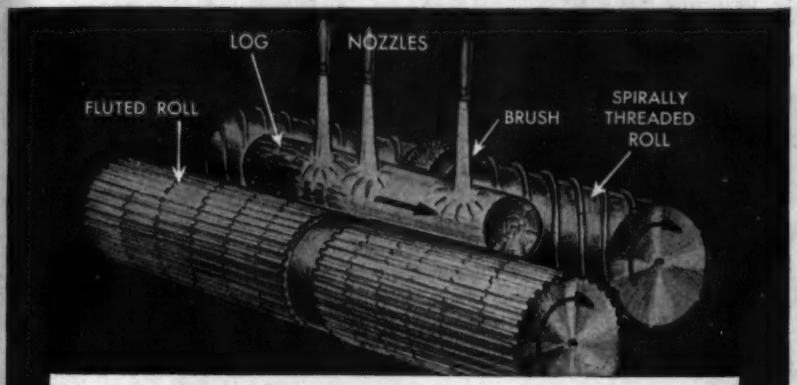
COOKING — Digesters, Blow Tanks, Kilns, Slakers, Heat Exchangers, Condensers.

WET ROOM — vibrating-type screens for use as Thickeners, for dewatering rejects.

PAPER-MAKING — special design Drives for Paper Machines, Rewinders, Calenders.

ALLIS A-C CHALMERS

CALLING IT "Barking"



HERE'S SECRET OF STREAMBARKER! Water, forced at 650 lbs pressure through 3 specially designed nozzles, *rips off bark by erosive action* as log is revolved and propelled through machine by two bed rolls — one fluted, the other spirally threaded.

Here's What "Streambarker" Means to You:

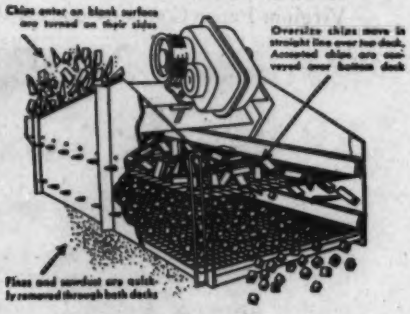
1. **BIG PRODUCTION** — at least 10 cords per hour, based on 90, 4-foot sticks per cord!
2. **LOWER PULPWOOD LOSS** — 150 ton mill can save $100,000 a year in brooming losses alone!
3. **SAVINGS IN MANPOWER.** For example, one 100 ton mill has been able to transfer 9 men from woodroom to other important jobs!
4. **LOWER COST** — initial and installation cost is less than for conventional barking equipment!
5. **COMPACTNESS** — valuable space in wood room can be converted to more profitable use!
6. **BETTER QUALITY PULP** — because wood through "Streambarker" is sound, clean—free from dirt and rot!
7. **SPEEDED OPERATION** — lower dirt count means less work, more speed for diaphragm screens!
8. **GREATER PROFITS** — it all adds up to lower costs, better pulp quality — and most important — bigger profits for you!

A 1845

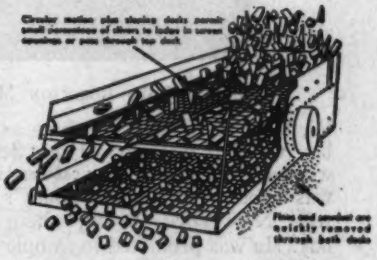
DEVELOPMENT NEWS

THE GROWING TREND toward use of Vibrating-type Chip Screens in existing and new mills indicates eventual *standardization* on this newer type by the industry. Four main reasons which have been responsible for this increased acceptance are: 1) Vibrating Chip Screens *cost less* than conventional revolving or shaker-type screens; 2) they take *less* space; 3) they require *less attention;* 4) they do a *better, faster* separation job than conventional screens.

Here are two *different* Vibrating Chip Screens which Allis-Chalmers offers:


Chips enter on blank surface are turned on their sides
Oversize chips move in straight line over top deck. Accepted chips are conveyed over bottom deck
Fines and sawdust are quickly removed through both decks

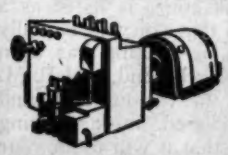
LOW-HEAD HORIZONTAL-TYPE Chip Screen — Its 45° straight-line vibratory motion in combination with horizontal decks assures the *highest percentage* of uniform chips. Reason is that all chips are carried in a straight line, *on their sides* — acceptable chips passing through, rejects and long slivers passing over, top deck.


Circular motion plus sloping decks permit small percentage of slivers to lodge in screen openings or pass through top deck
Fines and sawdust are quickly removed through both decks

RIPL-FLO INCLINED Chip Screen — Circular motion in combination with inclined decks assures an *average percentage* of uniform chips. Reason: a *small* number of slivers tend to turn on end and lodge in screen openings or pass through top deck and combine with accepted chips.

Send for Bulletin B6353 for *facts* to help you select the Screen that's best for you.

♪ *Tune in the Boston Symphony, Blue Network, every Sat. Eve.*



POWER — all types of Power Generation, Distribution and Control Equipment.

MOTORS & CONTROLS — all types a-c and d-c Motors, ½ to 7000 hp — Gearmotors.

TEXROPE V-BELT DRIVES — fractional to 5000 hp — Constant and Adjustable speed.

PUMPS — Single & Multi-Stage, 10 to 150,000 gpm — Paper Stock Pumps, Fan Pumps.

MILWAUKEE 1, WIS.

Obituary

John R. Miller

John Robinson Miller, director, and vice-president in charge of sales of the West Virginia Pulp and Paper Company, died March 15 at his home in Garden City, Long Island, N. Y., after a long illness. The funeral services at the Cathedral of the Incarnation, Garden City, was attended by a large group of his friends from the paper and publishing industries.

Mr. Miller served with the company for 49 years. When young Miller was 14, his father was superintendent of Jessup & Moore Paper Company at Rockland, near Wilmington, Del., and when the West Virginia Paper Company opened its mill at Piedmont,

JOHN ROBINSON MILLER

W. Va., the father went there as superintendent. The boy went to the Davis High School, Piedmont, and worked in the mill at vacation time. A year later he was transferred to the company's offices at 309 Broadway, New York, N. Y., where he worked as office boy. He was promoted to sample clerk, then salesman. At 29, he opened and managed the Company's office at Chicago, and in 1918 was brought east to become assistant to the president, a post he held until 1921, when he was made director and vice-president in charge of sales.

Mr. Miller was also a director of the company's subsidiaries, American Papers Exports, Inc., and Robeson Process Co.

He was a vestryman of the Cathedral of the Incarnation; belonged to the Union League Club, was a Knights Templar; and served for 11 years in the 23rd Regiment, Brooklyn.

With an experience of almost a half-century supplying stock for magazines and books to the nation's publishers, he became one of the best-known and most highly-esteemed men in the industry.

Elvin L. Small

Elvin L. Small, 74, Appleton, Wis., died March 14 after a 3-year illness. He had fractured his hip when he slipped on ice March 12 at his home. He had retired four years ago as chief engineer of the Fox River Paper Company, a position he had held for 20 years.

Born November 25, 1870, at Lewiston, Maine, he had lived in Appleton for the last 25 years. Before coming to Appleton he had been chief engineer for the American Writing Paper Company at Holyoke, Mass., for 14 years. Prior to that he was connected with the New York, New Haven and Hartford Railroad and the Berkshire Street Railway at Pittsfield, Mass.

He was a member of the First Congregational Church, Appleton; Harmony Masonic Lodge, Giddings Royal Arch chapter, Doric council and Melha temple of New Britain, Conn.; the Washington commandery, Hartford, Conn., and was an honorary member of Tripoli Shrine, Milwaukee, Wis.

Funeral services were held Saturday afternoon, March 17, at the Wichmann Funeral home, Appleton, with the Rev. Dascomb Forbush in charge. Burial was in Pittsfield cemetery, Pittsfield, Mass., on Monday, March 19.

Penn. Governor Sets "Paper Holiday"

PHILADELPHIA, Pa., March 19, 1945—Governor Martin has set April and May for the observance of a voluntary "Paper Holiday" in Pennsylvania, making this Commonwealth the first state to do so.

During this period, retail stores are asked to urge their customers to bring shopping bags to carry their purchases, and not to wrap or bag articles except for sanitary and protective purposes. In addition, everyone is requested to save and turn in to local salvage collections all newspapers, magazines, bags, wrapping paper, cartons, boxes, cereal and cigarette containers, and clean waste basket paper of every kind.

The Governor's appeal for extra paper conservation during the two months pointed out that Pennsylvania's manufacturers of paper and paperboard have been forced to temporarily close their plants from time to time because of lack of waste paper.

The paper holiday is sponsored by the advisory committee on salvage of the State Council of Defense, the special war committee on salvage of the Pennsylvania Newspaper Publishers' Association, and the conservation and salvage division of the War Production Board.

Paper Men Plan Graphic Arts Group

PHILADELPHIA, Pa., March 19, 1945—The fine paper houses that are represented on the board of governors of the Paper Trade Association of Philadelphia, met on Wednesday last and informally discussed a proposal that the various graphic arts groups become members of an association known as the Printing Industries of Philadelphia, Inc. In connection with this, Ralph G. Luff, president of the association, has sent out a notice to all the members which reads as follows: "Your house is listed as a member of the Typothetae. So that you will be fully informed concerning the plan, a meeting has been arranged for next Thursday, March 22nd, at 4 P. M. at 631 Drexel Building, when the various facts and factors of the plan will be discussed. We are trying to secure copies of the plan so that it will be in your hands by Wednesday; you can then familiarize yourself with it before the meeting.

"It is planned to take some definite action in order that the Paper Trade Association representative on the Graphic Arts Commission will know how to proceed, and you are, therefore, expected to be in attendance."

"FROM THE FOREST-
TO THE FIGHTING FRONT"

V-Boxes and Containers

The successful and uninterrupted flow of the materials of war depends upon an ample supply of shipping cartons and containers, the result of the conversion of trees to pulp. One of the most important energy forces behind this conversion is the consistent day-by-day operation of Kraft Mill Evaporators.

Thirty years engineering and manufacturing experience have established Goslin-Birmingham Evaporators as standard pulp mill equipment... as a result, many pulp mills depend upon G-B Evaporators for successful and continuous plant operation.

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CHICAGO SAN FRANCISCO NEW ORLEANS SEATTLE

New England TAPPI Discusses Coating

The New England Section of the Technical Association of the Pulp and Paper Industry met at the Elks Club, Fitchburg, Mass., on Friday, March 16. W. L. Foote of B. F. Perkins & Son presided as chairman.

Coating Base Raw Stock

Characteristics of Coating Base Raw Stock was the subject discussed by N. I. Bearse of the Champion-International Company, Lawrence, Mass., and E. H. Barclay of Kupfer Brothers Company, Northbridge, Mass.

Mr. Bearse said, in part "If there were only one kind of coating there would be varying specifications for the body stock because of differences in methods of application and in drying, finishing and other auxiliary equipment. When, in addition, we consider the many kinds of coatings, the specifications assigned to body stock are greatly multiplied. Coating types are so widely different that in some cases the stock may be considered simply a carrier for the all-important coating, while in others the coating is only a refinement of the more important paper.

This talk is intended as an introduction to a general discussion to follow, and will not go into detail in connection with the so-called "specialty papers." It is hoped that any such details of interest to those here, can be covered in the later discussion, or by association with the following material. By narrowing this introduction to cover body stock for coated book paper we shall accomplish at least two ends; first we shall get to our general discussion earlier, and second, we can concentrate on the only phase of the general subject about which I know anything. In addition, perhaps we shall cover (in outline) many of the characteristics that are common to body stocks for all types of coating.

There is one all-embracing quality of all papers that is most important and which we will consider by itself. The reference is to uniformity—uniform across the web and throughout the order. Many times we have heard a customer complain that "its not so much the poor paper that bothers, its because you hide the poor sheets between the good." This subject is summarized in *Paper Mill News* (Sept. 23, 1944, page 64) and I quote;

To Insure Continuous Uniform Quality

"The conditions to insure continuous production of paper of uniform quality are as follows:

1—use of raw materials that are 100% standard
2—mill water of constant temperature and analysis
3—stock preparation and paper making equipment that is 100% automatic and completely wear-resistant.
4—nonvarying weather conditions

None of the above can be realized, but they should guide us in selecting methods for maintaining uniformity.

As we do not get perfectly standard shipments of raw materials, we must have a testing department to determine what we have received, and a background of data on which to base sound recommendations to modify production procedures to accommodate variations from standard in any raw material.

As mill water varies from natural, and other causes we must condition it to insure that abnormal water condition does not upset uniformity of paper.

As stock preparation and paper making equipment is not 100% automatic, we must depend on human operators, and the paper is heir to many human failings. To minimize this influence it is imperative to have an industrial relations program that promotes among operators;

(1) Agreement as to methods of manufacture, (2) interest and pride in good results, and (3) realization of the value of using and helping the other functional departments of the company.

As mechanical equipment is not wear resistant we must continually make intelligent adjustments to allow for wear of machine parts and clothing.

As weather conditions are not uniform, its variations must be checked and any impending effect on paper must be anticipated and forestalled.

In summary we would recommend the following to those who aim at uniform quality:

(1) careful establishment of quality specifications for the production departments.

(2) careful definition of the limits of allowable variation in all qualities.

(3) Use of an efficient technical control crew, backed by a capable department.

(4) sound training of all employees toward cooperative loyal effort.

Requirements for Ideal Body Stock

In coated paper for use as printed matter, the coating supplies only the printing surface and the remainder of the utility requirements are fulfilled by the base stock. And in addition to the use requirements the coating mill imposes other specifications. In our opinion, the requirements for an ideal body stock might be broken down as follows:

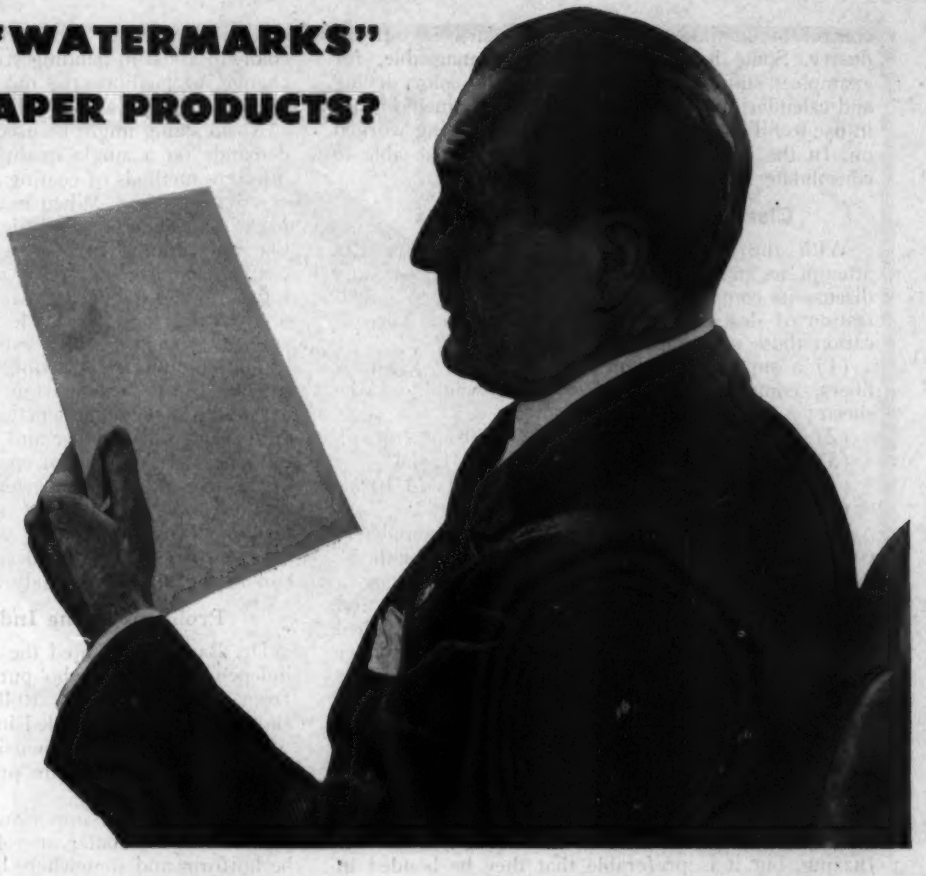
A. For the producer
   (1) low material cost
   (2) capable of production at high speeds
B. For the coater
   (1) sufficient strength for processing
   (2) unit weight and width as specified
   (3) high brightness
   (4) suitably receptive to coating color
   (5) well felted or bonded (not fuzzy)
   (6) suitable drying charactertistics
   (7) suitable calendering (or finishing) characteristics
C. For the printer
   (1) sufficient strength and flexibility for high speed printing and binding
   (2) not sensitive to normal humidity and temperature changes
   (3) resilience (or cushion)
D. For the user
   (1) sufficient strength for folding and handling
   (2) suitable resistance to deterioration with age and exposure

And uniformity in all the qualities across the web and throughout the order.

Such a stock probably does not exist in perfection, but in looking to the future we give this talk the popular post-war touch.

A study of the above list of qualities will reveal that most of them are susceptible to measurement and

STRANGE "WATERMARKS" IN YOUR PAPER PRODUCTS?

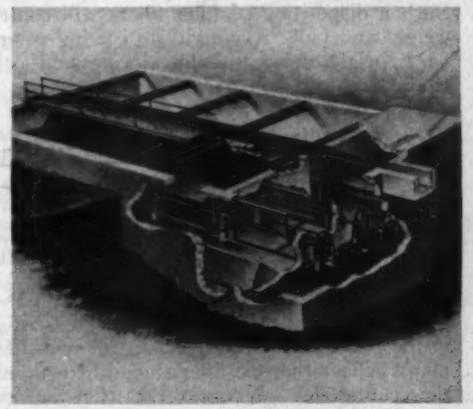


WE MEAN those unwelcome streaks, spots and stains. They're caused by dirt, color, iron or other impurities in the process water. They can clog machinery and cut your output, too.

You can't afford to take chances on the water you use. And you don't *need* to. Permutit* Water Conditioning equipment gives you complete control of water quality, makes you independent of local conditions.

If you have a water problem (and what pulp or paper mill hasn't?) bring it to the world's largest manufacturer of water conditioning equipment: The Permutit Co., Dept. I2, 330 West 42nd St., New York 18, N. Y., or Permutit Co. of Canada, Ltd., Montreal.

* Trademark Reg. U. S. Pat. Off.



PERMUTIT WHITE WATER RECLAIMER—Recovers fibre and filler more completely than is possible with any other type of equipment, permits re-use of water.

PERMUTIT

WATER CONDITIONING HEADQUARTERS

control by methods which are standard in our industry. Some however are not as manageable, for example: "suitable receptivity to coating color, drying and calendering characteristics." Various methods are in use to fill in these gaps and many are being worked on. In the discussion to follow, we may be able to consolidate same ideas in this direction.

Classification of Component Parts

With the foregoing qualities in mind we can attempt to analyze the structure of body stock and discuss its component parts as contributing to a realization of desired specifications. In a broad classification these component parts are:

(1) a supporting framework of interlaced, united fibers, comprins from 50-25%, by weight, of the sheet.
(2) a matting of filler fibers (40-70%)
(3) a suspension of pigment-filler (5-15%)
(4) sizing and similar modifying agents (1-10%)
(5) air (40-60%)

The supporting framework should be as completely continuous as possible, well bonded (perhaps with the assistance of modifying agents), using as long a fibre as is commensurate with good formation and even distribution. This should be accomplished through the use of as small a proportion of long fiber as possible. In terms of the previously listed qualities such a framework is designed to supply: sufficient strength for coater, printer and user, suitable drying and calendering characteristics, resistance to humidity changes, flexibility and resilience.

The filler fibers should be comparatively short, of low specific gravity, resilient and bright in color. These fibers should be felted well enough to prevent fuzzing, but it is preferable that they be bonded in groups and that these groups shall be discontinuous. Such a disposition of filler fibers will contribute to: weight and bulk, receptivity to coating color, lack of fuzz, bright color, suitable drying and calendering characteristics.

This meticulous placing of paper fibers with respect to one another must seem definitely impractical and a bit absurd to a paper maker. We claim only that it is of value to have definite ideas as to what should be aimed at. It is not a matter of all or nothing, fortunately the nearer we approach the ideal formation and distribution the nearer we come to the perfect paper.

The pigment filler should be bright, not abrasive, inexpensive and easily retained. Its best distribution in the paper is open to question for one-side coating, many believe that the filler should be concentrated on the coating side (or vice versa). On the other hand, for two-side coating it seems evident that it should be evenly dispersed in the sheet. There has been much investigation of the value of high opacity pigments in paper, and for coated book it is our belief that the weight of evidence contends that the use of such pigments in the body stock will not justify their cost. As we see it, pigment filler contributes to: weight, brightness, suitable reception of coating color, suitable calendering characteristics, low cost and resistance to humidity change.

Modifying Agents

"Size and other modifying agents" may be considered to include: rosin (in its various forms and modifications), alum (sodium aluminate, ferric sulphate and other coagulating agents), starch, wet-strength resins, silicate, bacteriacides, colors and others. They serve to control: receptivity of coating color, to assist in bonding strength, to resist humidity change, to facilitate the mechanics of paper making, and other purposes more or less self evident.

Rosin sizing might be used to illustrate the variable demands on a single quality which are imposed by different methods of coating application and by different coating types. When heavy pastes are applied by press-type coaters, very little if any sizing is required. On conventional brush-type coaters, casein-pigment coatings require less sizing in the body than do coating formulas in which starch is the adhesive. If we are coating with a vehicle dissolved in an organic solvent, rosin size in the body is probably superfluous.

The amount and distribution of air in body stock can be seen to be important when we consider them as rigidly dependent functions of solid fraction and formation. The number and size of air spaces greatly influences; receptivity of coating color, strength, drying and calendering characteristics, color and printing cushion. Measurement of solid fraction is readily made and in conjunction with air porosity at two different pressures should constitute a valuable control in the making of body stock.

Problems of the Independent Coater

Dr. Barclay indicated the problem confronting the independent coater who purchases paper raw stock from outside sources. Rolls shipped to the coater should be carefully loaded into box cars so that they will be uniform as to dimensions. Each roll should be carefully marked in terms primarily for the information of the coater.

The three most important considerations of importance to the coater are: 1. Moisture. This should be uniform and somewhere between 4 and 6 per cent for general use; 2. Wettability should be uniform since the brushes need to be carefully set so that the need for further adjustment is kept at a minimum; and 3. The sheet should be uniform across its width and throughout its length.

Rolls should be free from welts, be of uniform color, have even receptivity (wettability). There should be freedom from streaks in the paper from wire, felts or stacks since these cause wet wrinkles. Fuzz shows up worst on grays and light blues. Sizing should be sufficient to provide rapid penetration of the color. If the penetration is too rapid the sheet will sag. If it is too slow the sheet will edge curl.

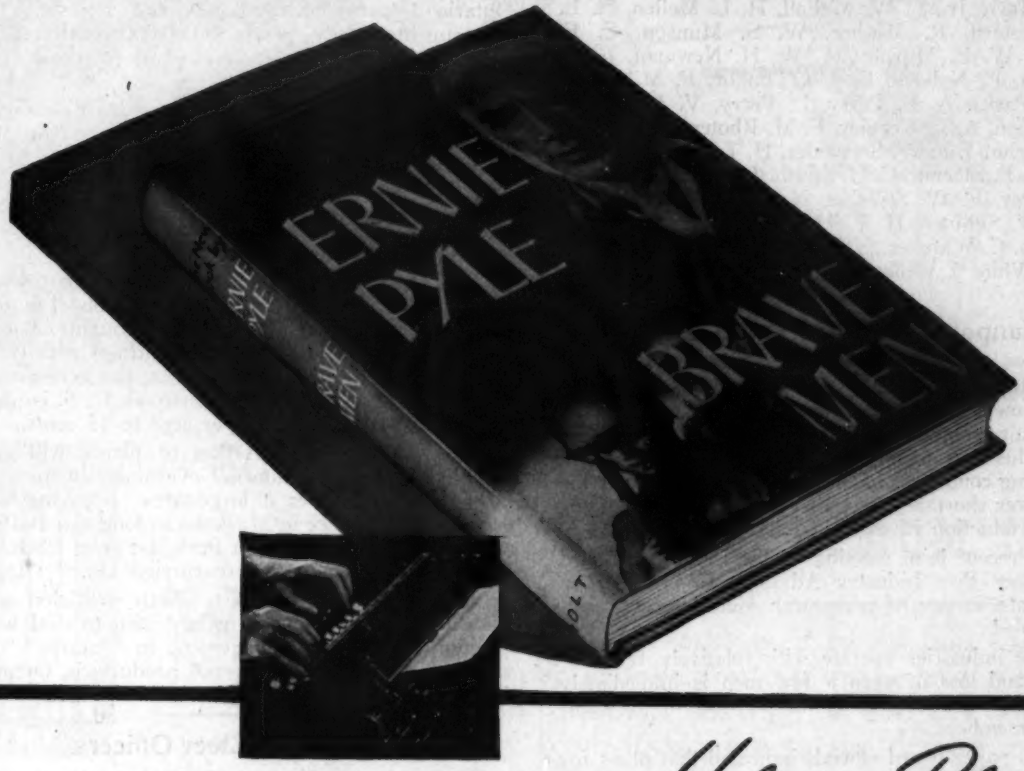
Once the coating machine is set, even paper will permit good smooth operation. Although the coater can use various dopes, and has means of solving his operating problems the use of these often create problems later in the operations.

G. C. Schmid of the Falulah Paper Company and R. H. Doughty of the Fitchburg Paper Company were in charge of preparations for the meeting.

Those in Attendance

Those present included: J. J. Aid, A. M. Altieri, H. R. Bailey, H. Bainbridge, E. H. Barclay, N. I. Bearse, A. Berault, P. S. Bolton, A. M. Brooks, A. L. Bull, J. B. Calkin, J. F. Carey, G. S. Carroll, C. H. Child, N. V. Cirillo, L. Clark, J. L. Coburn, L. P. Collette, R. P. Cook, H. C. Cookingham, L. W. Crouse, G. M. Crowthers, V. C. Davis, L. De Jonge, F. H. Denham, P. A. Donaghy, H. S. Duston, E. Eyles, Jr., F. W. Farrell, H. M. Federhen, F. R. Filz, W. L. Foote, R. A. Godin, M. F. Hall, R. L. Hartwell, C. M. Hastings, R. A. Heussler, L. R. Hill, W. F. Hoffman, P. B. Holden, A. L. Holt, C. I.

THE BEST SELLER STARTS ON WHITE PAPER...



...AND WHITENESS STARTS WITH *Helmerco Blue!*

Today's white bond, writing, book and ledger papers possess a high whiteness of shade that yesterday's papers never knew, when they're tinted to a pure white perfection with Helmerco Blues.

Helmerco Blues have excellent working properties in any furnish. Added directly to the beater, they disperse immediately, giving a broad range of white shades having good light fastness and excellent brightness. Helmerco Blues give white papers premium quality whiteness, at a minimum color cost. Fine light blues in the same group of papers can also be produced with Helmerco Blues.

H & M Technical Service Department is always ready to cooperate with you in developing special dyes for specific paper problems, or in supplying desired information on the correct usage of H & M colors.

RANGE OF HELMERCO BLUE SHADES FROM RED TO GREEN

M 4 R Conc.	2 G B Conc.
M 2 R W Conc.	M 2 G Conc.
M G W Conc.	M 4 G Conc.
M G Conc.	M 5 G

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Horton, H. J. Hosking, Mr. and Mrs. C. C. Irving, W. F. Kallock, W. Kaufman, W. Kenety, Miss H. U. Kiely, R. E. Kilty, W. S. Kumblad, A. Landt, R. S. Leighton, J. T. Loomer, W. A. Lowe, R. G. Macdonald, R. Mannheim, J. Marcy, M. M. Marshall, B. J. Mayo, Jr., L. W. McFail, H. L. Mellen, H. L. Morganstern, R. Mosher, W. S. Munson, C. F. Murch, W. E. Murphy, A. W. H. Newman, F. R. Newton, F. Nyborn, E. J. O'Connor, F. M. Parks, G. F. Parks, A. L. Perry, L. Perry, V. L. Powell, H. Rafton, A. E. Regnier, F. M. Rhoten, J. E. Ryan, G. C. Schmid, F. W. Schneider, H. J. Simonds, N. G. Sixt, C. P. Slocum, C. H. Smith, J. Snyder, G. Soule, A. Stacey, E. W. Strecker, N. J. Stein, F. A. Stroving, W. Sullivan, H. T. Tinker, D. D. Uong, C. W. Walters, C. Warcher, A. K. Warner, W. Wentworth, L. W. White, J. Willey, C. Woodcock, and F. Wyman.

Manpower Short in Board Output

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 21, 1945—Although able to meet critical war demands and essential civilian requirements for container board and fiber boxes, the industries manufacturing these shipping and packaging containers have expressed concern over the manpower shortage, the Paper Board Division of the War Production Board said today.

At a recent joint meeting of the Container Board and Fiber Box Industry Advisory Committees an immediate survey of manpower conditions was recommended.

These industries operate with relatively few employes and loss of even a few men is immediately reflected in production, it was pointed out by committee members.

WPB paper board officials indicated that plans for obtaining information on the relation of manpower to production in the paper board industry would be formulated at once and the industry kept posted. Manufacturers will be asked to advise WPB as to additional quantities of V-boxes that could be produced with increased personnel. The V-box program is now established at 335,000 tons a quarter, it was said, but may have to be increased.

Pointing out the necessity of conserving kraft, a WPB official said that the less essential boxes should not be made from kraft when avoidable. He said it was essential that the production of container board be maintained at the 1944 level because of its essentiality, although production of many other paper products may be curtailed.

A plan to encourage re-use of fiber containers and the salvaging of all usable boxes was discussed.

C. K. McArthur To Manage Sales

C. K. McArthur has been promoted by the Dorr Company to manager of sales covering United States, Mexico, Canada, Newfoundland and Alaska. For the past two years Mr. McArthur has been manager of the company's Metallurgical Division. His headquarters continue to be in New York.

Mr. McArthur joined the Dorr Company as a sales engineer in 1926, and has since broadened a metallurgical background, then already extensive, through engineering operations for Dorr in the United States, Canada, South America and Mexico. This broad experience and background makes him well qualified for his new responsibility.

Ontario Reports on Fire Prevention

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., March 19, 1945—Pulp and paper interests in Ontario should derive considerable benefits from the conservation extension program of the Ontario Department of Lands and Forests. The Department already spends $3,000,000 yearly on fire prevention of forest areas and plans to spend more in the future.

The department added four planes to its division of air services last year and is adding four more this year, to bring its forest fire protection fleet total to 37. Expenditures for this great provincial resource have been criticised as inadequate and some sources have advocated a non-political forest resources commission to deal more effectively with the problem.

Ontario's expenditures, according to departmental deputy, F. A. MacDougall, average about 1.5 to 2 cents per acre for fire prevention, or, roughly, 3 cents per acre total expenditure. This contrasts with U. S. Government expenditures of 9 cents per acre over a comparable area, and, it is understood, U. S. is planning to boost its spending per acre to 15 cents.

This year an R.C.A.F. fleet of planes will give volunteer help to the Ontario Government in spraying DDT insecticide over a large area. Spraying was used by the province in Muskoka as long ago as 1926 and 1927, and in Algonquin Park last year, when the first DDT experiments were carried out.

In the throne speech last month provision was made to create a body of trained men to deal with questions of forest management in Ontario. The value of all timber and sawmill products in Ontario for the year 1940 was $20,933,784.

Carter, Rice Elect Officers

At the annual meeting of Carter, Rice & Co., Corporation, 273 Summer street, Boston, held on March 5, 1945 Harold E. Jefferson, a native of Saugus, Mass. who came to the company in 1926 and who for the last ten years has served as its credit and collection manager, was elected to its board of directors.

The following officers: Charles A. Esty, president and general manager; H. L. Carter, vice president and treasurer; F. H. Winter, secretary; P. A. McGreenery, assistant treasurer; J. R. Halkyard, assistant general manager; together with E. A. Crowell, R. H. Welsh, and H. E. Jefferson constitute its board of directors.

Increase Wages at Hinsdale

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 17, 1945—The New England War Labor Board has ordered White-Washburne Company, Inc., of Hinsdale, N. H., to grant wage increases ranging from four cents to six cents per hour for the purpose of correcting substandard wage scales. The increases are retroactive to November 1, 1944.

The Board's order was issued in settlement of a dispute between the company and Local 483, International Brotherhood of Paper Makers, A. F. of L., which represents 68 production employees. Twenty-three women workers now receiving 44 cents per hour are to be increased to 50 cents; workers receiving between 50 and 55 cents an hour will get a five-cent increase, and those receiving 56 and 68 cents per hour, a four-cent rise.

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WOOD'S sheaves and V-Belts pull together and work together because they are *engineered* to do just that. Designed with the proper groove contour to permit complete belt contact and uniform seating, Wood's V-Belt drives transmit energy from its source to the driven machinery with maximum efficiency.

When grandfather's spanking bays trotted smartly down the turnpike, Wood's products were already in use. They have stood the test of time. Since 1857 this complete line of transmission equipment, skillfully designed and efficiently manufactured, has earned a reputation for excellence.

Wood's V-Belt drives, backed by Wood's experience, and gauged both by built-in quality and reliable performance, represent outstanding value in the field.

Wood's V-Belt drives and other products of Wood's manufacture will serve you faithfully in the post war era. Plan for post war now. Engineering consultation welcomed. Details furnished upon request—or see your conveniently located Wood's dealer.

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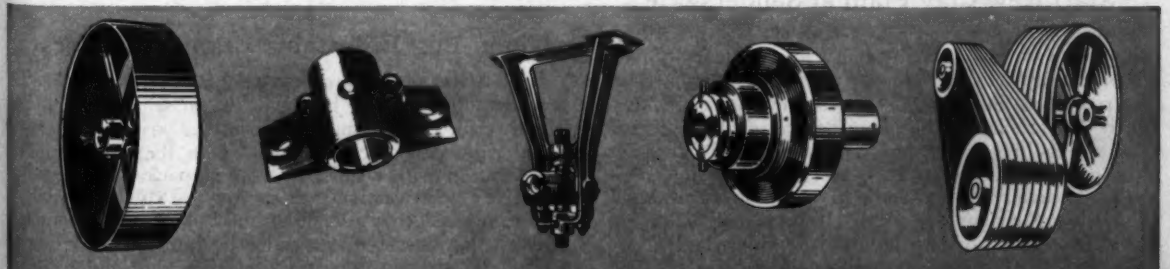
Bearings—Collars—Clutches—Couplings—Contactors —Hangers—Pillow Blocks—Pulleys—V-Belt Sheaves and Complete Drives



T. B. WOOD'S SONS COMPANY, CHAMBERSBURG, PENNA.

Branches: Boston, Mass. Newark, N. J. Pittsburgh, Pa. Cleveland, Ohio Detroit, Mich. Houston, Texas

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1945		Corresponding Weeks—1944	
Feb. 3	88.8	Feb. 5	88.4
Feb. 10	90.1	Feb. 12	88.8
Feb. 17	91.0	Feb. 19	89.2
Feb. 24	89.7	Feb. 26	87.7
Mar. 3 (Revised)	87.8	Mar. 4	87.0
Mar. 10	87.7	Mar. 11	88.5

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1944	88.7	88.5	88.1	87.6	88.7	89.8	80.3	90.6	90.1	92.5	90.6	82.4	88.1
1945	86.7	*89.4*											

COMPARATIVE YEARLY SUMMARIES

	1938	1939	1940	1941	1942	1943	1944	1945
Year to Date	66.4	78.9	86.6	88.1	103.8	88.4	88.4	*87.7*
Year Average	71.5	83.4	85.6	97.4	90.4	87.8	88.1	

*Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

Current Weeks—1945		Corresponding Weeks—1944	
Feb. 3	92	Feb. 5	97
Feb. 10	93	Feb. 12	97
Feb. 17	93	Feb. 19	96
Feb. 24	97	Feb. 26	93
Mar. 3	96	Mar. 4	95
Mar. 10	*94*	Mar. 11	95

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1944	90	96	95	96	96	96	85	96	92	95	95	85	93
1945	91	*95*											

†Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

Newspapers Use Less Newsprint

Daily newspapers reporting to the American Newspaper Publishers Association consumed 175,062 tons of newsprint paper in February 1945 compared with 182,487 tons in 1944 and 219,362 tons in 1941. This was a decrease in February 1945 under February 1944 of 4.1% and a decrease under February 1941 of 20.2%. The year 1941 is the base for calculating allowable use by newspapers.

The total estimated newsprint consumption in the United States for February 1945 was 241,465 tons which includes all kinds of uses of newsprint paper. For the first two months of 1945, it was estaimated to be 496,903 tons.

During the first two months of 1944 the reporting newspapers used 360,255 tons of newsprint, a decrease of 4.5% under the first two months of 1944 and a decrease of 19.8% under the first two months of 1941.

Stocks of newsprint paper on hand with newspapers reporting to the ANPA was 50 days' supply at the end of February 1945 which was a decrease of 4 days' supply from 54 days on hand at the end of January 1945.

Start New Clay Plant at Sandersville

Burgess Washington Clays, Ltd. are starting a new clay plant at Sandersville, Ga., in the heart of the Georgia clay belt. The company plans to produce both filler and coating clays. Its personnel has had many years' experience in the manufacture of all grades of paper clays, being formerly connected with Moore & Munger, 33 Rector street, New York City.

The company expects to be in operation about April 15. When the plant is completely built, it will have a daily production of two hundred tons per day.

Samples of the various grades of clay to be made by the company and technical data are available by writing Burgess Washington Clays, Ltd., Post Office Box 270, Sandersville, Ga.

Lake States TAPPI Meets

The March meeting of the Lake States Section of the Technical Association of the Pulp and Paper Industry was held Tuesday, March 13th at 6:30 P. M. at the Conway Hotel, Appleton, Wis. The speaker was Rex Vincent of the Bulkley, Dunton Pulp Company, Inc. of New York City, who discussed "Trends to be Expected in Post War Pulp Imports."

Those present included: Allen Abrams, Robert Anderson, J. W. Appling, L. R. Ayers, H. P. Baldwin, Arnold Beaman, G. J. Brabender, Marten Bretl, A. H. Bunks, Glen Carroll, Warren Chilson, James B. Clarke, Art Coffin, T. Collins, W. R. Conaton, Carleton Cook, D. R. Cushman, R. L. Davis, Donald W. Davis, G. K. Dickerman, M. L. Downs, Robert Elias, Wm. A. Fannon, George W. Forcey, L. V. Forman, Frank D. Frampton, Ted Frank, T. M. Gillespie, John Graff, John Green, John A. Handeyside, Paul Hansen, John A. Hanson, T. A. Howells, I. H. Isenberg, C. R. Jackson, Arthur F. Jankowski, Peter E. Jones, Anton J. Kabachnick, Wm. S. Kennedy, A. R. Kjellgren, James Kryszak, L. H. Lawrence, W. A. Lefevre, A. J. Luth, N. L. Malcove, R. C. McKeen, Gordon Morseth, Al Moss, Leonard Parkinson, T. A. Pascoe, P. A. Paulson, Earl Pennings, A. Phillips, T. R. P. Probst, W. B. Pusey, R. M. Radsch, E. W. Rasmussen, J. Richter Salvesen, Milton A. Schreiner, Fred Schwartz, L. J. Smith, R. A. Stillings, E. R. Sutherland, W. H. Swanson, M. J. Taylor, J. E. Todd, Vernon Truesdale, John Turk, Cornelius Van Den Boom, Rex Vincent, E. H. Voigtman, A. W. Werner, Wayne Whulhouse, John Wollwage and Joseph P. Zelinske.

OPA Meets With Timber Men

The Office of Price Administration last week advised the Timber Producers Association of Upper Michigan and Northern Wisconsin that Henry C. Waldo, chief of the OPA pulpwood unit in Washington, D. C., would meet representatives and producers of the association in Chicago on March 19 and 20.

The meeting, called at the request of the association, includes pulpwood and hemlock pulp log producers and pulp and paper mill representatives in the Lake States, Wisconsin, Michigan and Minnesota. Ceiling prices and their effect were to be discussed.

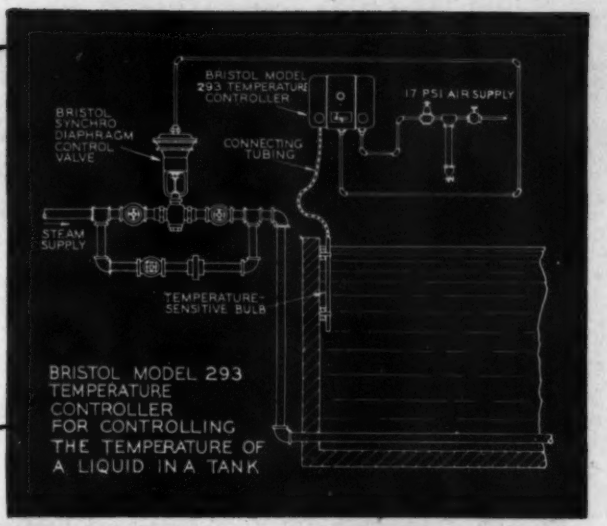
Pulpwood production estimates for the current season indicate production is down from 25% to 50% over the same period last year.

The March 20 meeting will be confined to representatives of pulp and paper mills, while the one the previous day was to be for producers only.

Union Bag Entertains English Visitors

GLENS FALLS, N. Y., March 19, 1945—A group of representatives from John Dickinson & Co., Hemel Hempstead, Herts, England, spent the past week here conferring with officials of the Union Bag and Paper Corporation with regard to tropical packaging materials. The visit was made at the request of the British Air Commission in Washington. Following the conference they were entertained at a dinner held at the Glens Falls Country Club which was attended by several officials of the local concern. Among the visiting group were E. G. Kemp, H. I. Warrel and M. J. Curran.

WHERE VARIABLES *must be controlled* BUT NOT NECESSARILY *recorded*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17 PSI AIR SUPPLY
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BRISTOL MODEL 293 TEMPERATURE CONTROLLER FOR CONTROLLING THE TEMPERATURE OF A LIQUID IN A TANK

Here ARE THE VARIABLES THE MODEL 93 CAN CONTROL

Temperatures
from −125° to 1000°F.

Pressures
from full vacuum to 4000 psi.

Liquid Level
in open or closed vessels.

Humidity
from 0 to 100% R.H.

Flow
of steam, gas, air and liquids through pipes.

Bristol's new Model 93 Air-operated Controllers are designed for those cases where you want variables put under accurate control, but where chart records are either not required or are otherwise provided for.

Model 93 is a small, compact, simple instrument having a precision measuring element and Bristol's Free-Vane Control—the frictionless system which is the most accurate of all air-operated designs. You get an absolutely true visual indication of results.

A new bulletin, No. A115, gives complete details. Write for a free copy to 159 Bristol Road, Waterbury 91, Conn.

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Michigan Superintendents Meet

KALAMAZOO, Mich., March 19, 1945—H. C. Moore, vice president of the Beloit Iron Works, Beloit, Wis., spoke before seventy members of the Michigan Division of the American Pulp and Paper Mill Superintendents Association at the dinner in the Park-American hotel Thursday evening of last week. He was introduced by Joseph L. Waber, chairman of the division. The paper machine of the future, according to Mr. Moore, is not going to be radically different from the machine now in use. The main difference, the expert machine designer said, will be in refinements and improvements worked out after careful research has established not only the value but the economy of the changes.

Those present were as follows: H. C. Abrams, Harold Chew and Edward Lesperance, Manhattan Rubber Company; A. E. Armstrong and P. L. Ulrich, Armstrong Machine Works; W. H. Astle, J. A. Dean and T. Sisson, Michigan Paper Company; Ralph Atkins and Charles Gardner, Lee Paper Company; P. D. Applegate, D. D. Cameron and Fred Chappell, Hercules Powder Company; H. C. Brunner and M. A. Thompson, Wyandotte Chemical Corporation; H. C. Bradford, A. W. Cole and Joe Waber, Rex Paper Company; Willard Burchart, Ken Conrad, H. W. Hartman and R. P. Nicole, American Box Board Company; M. H. Coombs and L. M. Halleck, Kalamazoo Tank and Silo Company; S. P. Boland, S. P. Boland Company; E. T. A. Coughlin, Wayne Crotty, O. F. Fischer, M. S. Fogerty, J. Mulford, R. H. Smith and N. L. Wallace, Bryant Paper Company; M. S. Clark, Mathieson Alkali Works; S. V. Cottrell, Allied Chemical and Dye Corporation; E. A. Dunton, G. E. Graham, Chas. B. Rader, Al Sherwood, Glen Sutton and Arnold Weller, Sutherland Paper Company; Jack Dickson, R. T. Vanderbilt Company; Joseph Dennany, M. F. Flotou, H. B. Johnston and Carl W. Siranson, Allied Paper Company; F. B. Eilers, Orr Felt and Blanket Company; W. F. Hathaway, Lester LaLiberte, Al Perlick, Geo. H. Rice and R. B. Stewart, Kalamazoo Vegetable Parchment Company; R. W. Holden, Stowe Woodward Company; Fred Hodgemier, Hawthorne Paper Company; P. M. Loddengraad, Bulkley Dunton Company; T. W. McLarren, National Starch Products Company; Walter Moore, Corn Products Sales Corporation; W. W. Macklem, Black Clawson Company, L. H. Mimms, Kalamazoo Paper Company, H. C. Moore and P. H. Tigwell, Beloit Iron Works, J. B. Ramage, H. Waterbury and Sons; Homer E. Stafford; R. W. Staggs, Westinghouse Electric and Manufacturing Company; W. E. Smith, Wallace & Tiernan Company; C. F. Sisson and Walter F. Wolfe, Mac Sim Bar Company; Robert Sinclair, Sinclair Wire Company; Peter Talbot, Williams Gray Company, C. E. Van Buren, Albany Felt Company and B. P. Weesner.

E. Fitzpatrick Goes With Brotherhood

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., March 12, 1945—Announcement is made here that Eugene Fitzpatrick has resigned as information executive for the local branch of the OPA in order to take the position as education director of the International Brotherhood of Papermakers, which maintains national headquarters in this city. He has been branch manager for the Office of War Information here.

E. W. Tinker Corrects Rep. Case

Recent criticism of Canada by Representative Case of South Dakota, for lack of cooperation in the current shortage of paper and paper products and "for failing its best customer in an emergency," was based on faulty or inadequate information, E. W. Tinker, executive secretary of the American Paper and Pulp Association, wrote the Representative on March 15.

In his letter, Mr. Tinker stated that "Canada has done an admirable war production job in the pulp and paper field and, despite heavier empire demands, has been most cooperative and sympathetic in working out problems of hemisphere supply."

In supporting his statement, Mr. Tinker pointed out that Canadian pulp shipments to the United States were at a ratio of 218% of the average five-year pre-war period; that Canada had delivered 1,650,000 cords of pulpwood in 1944 when she agreed to deliver a minimum of 1,250,000 cords, and that in 1943, a total of 2,792,000 tons of newsprint had been shipped as contrasted with a total overseas shipment to all other countries of 213,000 tons.

The paper supply is currently limited, Mr. Tinker advised Representative Case, not because of productive facilities, but because manpower and equipment shortages prevent full utilization of existing facilities.

Mr. Tinker expressed disagreement with the conclusion drawn by Representative Case that "we may be justified in encouraging greater development of our domestic paper manufacturing industry, either with private or government capital."

"I think I can assure you with certainty that if new capacity is required in the post-war period, it will be created in timely fashion by private enterprise and that no government capital will be required for this purpose," Mr. Tinker stated. "The pulp and paper industry has traditionally erred on the side of overcapacity. Given a satisfactory tax structure and a suitable economic environment, there is no question but that it will fulfill domestic pulp and paper requirement in the post-war period."

Hold Joint Meeting at Brownville

The joint meeting of the Empire State Section of TAPPI and the Superintendents Association, held at the Brownville, N. Y., Hotel on Thursday, March 8, proved most interesting. The speaker was Norman O. Weil, chairman of the Industrial Affiliates and assistant vice president of the W. S. Tyler Company.

Mr. Weil gave some extremely illuminating facts concerning the use of industrial wire cloth and indicated the vital part which it is playing in the war effort. Great improvements have been made in treating bronze wire especially, by the wire industry resulting in better and better fourdrinier wires.

He also discussed the work done by the patch welder and with samples, both new and used, showed the improved results.

Those who attended were as follows: F. L. Lang, F. K. Becker, C. T. Fogarty, F. C. Goodwill, Martin Jaffe, Stanley Donaldson, B. H. Treadwell, C. Winslow, Norman O. Weil, H. A. Spencer, E. W. Clarke, D. K. Pattillock, P. D. Switzer, D. C. Mather, George Duers, H. Remington, Tom Newcomb, George Baker, L. J. Gilley, W. B. Mills, C. A. Nugent, J. Walter Couture, W. O. Forbes, William Rice, R. G. Easton, C. O'Brien, C. Jewell, W. J. Argy, J. H. Treadwell and James Campany.

Howard Allied Mills Elect Officers

On Monday, March 12, 1945, at a meeting of the shareholders of The Howard Paper Company and allied mills, the Aetna Paper Company, Dayton, Ohio; the Maxwell Paper Company, Franklin, Ohio; and the Dayton Envelope Company, Dayton, Ohio; held at the office of the Howard Paper Company, Urbana, Ohio, directors were elected and other items of business pertaining to the corporations in the past and for the future were discussed.

Harry A. Legge was elected president of the four corporations, succeeding the late Colonel Maxwell Howard, and W. B. Zimmerman was named managing director. Lucius S. Howard and Ward R. Howard, both brothers of the late Colonel Maxwell Howard, were elected directors, and treasurer, and vice-president, respectively, and other officers named were Chester L. Dane, vice-president, and J. A. Cobey, secretary.

Mr. Legge and Mr. Zimmerman have had a long period of service with the Howard Allied Mills, in each instance serving in various capacities without interruption since the close of World War I.

Mr. Legge was first employed by The Howard Paper Company in 1913 and following service in World War I with the First Replacement Regiment of Engineers he returned to the Howard Paper Company in February 1919 as assistant mill manager of the Howard mill. After the tragic death of Howell H. Howard, son of Colonel Maxwell Howard, 1937, Legge, then mill manager of the Howard Paper Company, was appointed by Colonel Howard as managing director of the Howard Allied Companies, which position he held at the time of Colonel Howard's death on December 31, 1944. During the same period, Mr. Zimmerman has servied as assistant managing director of the companies.

There will be no change in the management policies of the companies and their products will continue to be distributed throughout the United States by leading paper merchants, many of whom have served in this capacity for more than twenty-five years.

Col. Schell Talks to Salesmen

Col. Frank Schell, public relations consultant for the American Paper and Pulp Association was the guest speaker at the regular Monday luncheon of the Salesmen's Association of the Paper Industry, held on March 19 at the "400" restaurant in New York. Col. Schell declared that, "The objective of any real industrial public relations campaign is to create a public opinion favorable to the industry and to the products which it manufactures. Any industry's first contact with the public is its contact with its own employees, who, in some cases, represent a considerable percentage of the American people. Consequently, the first objective of an industry's public relations campaign should be to sell its own employees."

"If our system of private enterprise is to endure," Col. Schell stated, "the heads of our great corporations and the proprietors of our smaller businesses will have to wake up and display as much intelligence in the conduct of their human relations as they do in the other aspects of their business. . . . Consequently, the first job before us is to sell our own employees. Until we have done so, it is a waste of paper and ink to carry on a publicity campaign. . . . Having sold our employees and our mill communities, the next step should be to sell the mill states. I think that the best approach to this would be through the graduating classes of the state high schools. Courses of instruction for these classes on pulp and paper, should be provided by the industry and, at their completion, the students should be brought to the various mills in the state and taken on a personally conducted tour of one or more mills to wind up their course of instruction. Upon their return, they should be given an examination on the course for which suitable prizes might be donated by the industry."

February Newsprint Statistics

Production of newsprint in Canada during February 1945 amounted to 239,661 tons and shipments to 217,220 tons, according to the News Print Service Bureau. Production in the United States was 58,228 tons and shipments 59,095 tons. The output in Newfoundland was 25,973 tons and shipments were 23,750 tons making a total North American production of 323,862 tons and shipments of 300,065 tons. Total production in February 1944 was 315,443 tons and shipments were 296,698 tons. There was one working day less in February 1945 than in February 1944.

The Canadian mills produced 21,764 tons more in the first two months of 1945 than in the first two months of 1944, which was an increase of four and five tenths percent. The output in the United States was 4,403 tons or three and nine tenths percent more than in the first two months of 1944; in Newfoundland production was 10,114 tons or twenty-three and eight tenths percent more, making a total increase of 36,281 tons, or five and seven tenths percent more than in the first two months of 1944.

Stocks of news print paper at the end of February were 111,668 tons at Canadian mills, 6,751 tons at United States mills, and 49,681 tons at Newfoundland mills, making a combined total of 168,100 tons compared with 144,303 tons on January 31, 1945, and 174,032 tons at the end of February 1944. There was some further accumulation of tonnage at points from which water shipments will later be made.

Benton R. Cancell Appointed

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 21, 1945—Harold Boeschenstein, War Production Board Operations vice chairman, today announced the appointment of Benton R. Cancell t obe Director of the Forest Products Bureau.

Mr. Cancell went to WPB in May 1943 as an industrial specialist in the Pulp and Paper Division, and since November 1944, has been serving in the capacity of deputy director of the Forest Products Bureau.

In private life, Mr. Cancell is assistant to the president of the St. Regis Paper Company and has an extensive background in the pulp, paper and logging industries. His home is in New York City.

A. Madden Made Captain

BOSTON, Mass., March 19, 1945—Alphonsus Madden, who will be remembered as a salesman for Carter, Rice & Co., Corp., in Boston, Southbridge, Webster and other places in Massachusetts, has been made a captain in the U. S. Navy. Captain Madden was formerly a lieutenant commander in the Procurement Division on Causeway street, Boston, was later transferred to the South Pacific and promoted to commander. He served in the Pacific in various posts, including the Hawaiian Islands and Guam.

COMMITTEE MAKES AWARDS

(Continued from page 11)

15.47 cents (100,000 pounds); Walker Goulard Plehn Co., Inc., 15.40 cents (50,000 pounds).

No. 191. Barton, Duer and Koch Paper Co., 16.47 cents.

No. 196. Barton, Duer and Koch Paper Co., 25.25 cents.

No. 203. R. P. Andrews Paper Co., 8.48 cents.

No. 205. R. P. Andrews Paper Co., 13.75 cents.

No. 208. Frank Parsons Paper Co., 5.75 cents.

No. 210. Whitaker Paper Co., 5.905 cents (4¾ in. rolls); 5.655 cents (5¾ and 7½ in. rolls).

No. 217. R. P. Andrews Paper Co., 4.90 cents.

No. 218. R. P. Andrews Paper Co., 4.90 cents.

No. 255. R. P. Andrews Paper Co., 10.69 cents.

No. 271. Paper Corp. of U. S., 9.25 cents.

No. 276. Barton, Duer and Koch Paper Co., 8.50 cents.

No. 277. Barton, Duer and Koch Paper Co., 9.50 cents.

No. 301. Old Dominion Paper Co., $33.869.

No. 302. Old Dominion Paper Co., $48.737.

No. 305. Old Dominion Paper Co., $67.537.

No. 306. Frank Parsons Paper Co., 6.00 cents.

No. 307. Frank Parsons Paper Co., 6.50 cents.

No. 308. Barton, Duer and Koch Paper Co., 6.79 cents.

No. 309. Barton, Duer and Koch Paper Co., 6.40 cents.

No. 310. Paper Corp. of U. S., 10.00 cents.

No. 311. R. P. Andrews Paper Co., 10.25 cents.

No. 325. R. P. Andrews Paper Co., 6.17 cents (500,000 pounds); Whitaker Paper Co., 6.22 cents (600,000 pounds).

No. 326. R. P. Andrews Paper Co., 6.17 cents (500,000 pounds); Whitaker Paper Co., 6.22 cents (600,000 pounds)

No. 327. R. P. Andrews Paper Co., 6.17 cents (500,000 pounds); Whitaker Paper Co., 6.22 cents (600,000 pounds).

No. 366. Mathers-Lamm Paper Co., 4.415 cents.

No. 368. Consolidated Paper Co., 5.87 cents.

No. 369. Mead Sales Co., 4.00 cents (caliper 60 pts. and up); 4.375 cents (caliper 50 pts.).

D. M. Hicks, Inc., 50 Years Old

Daniel M. Hicks, Inc., New York, dealers in paper making supplies, is observing the fiftieth anniversary of the concern this year. The business was founded by Daniel M. Hicks in 1895. It was incorporated under the laws of the State of New York in 1911 with the following officers: president, Daniel M. Hicks; vice president, Walter R. Hicks; secretary-treasurer, Delia V. Hicks.

Daniel M. Hicks started his business career in the paper making supply business in 1872 with Briggs & Taylor. Later he became office manager for John L. Taylor and after that was connected with R. H. Overton & Son.

At the death of Daniel M. Hicks in September 1919, the business was carried on by his sons, Walter R. Hicks, president, and Albert T. Hicks, secretary-treasurer. Walter R. Hicks, Jr., joined the concern in June 1937 and on the death of his father in December 1937, was elected president, which office he still holds. He is at present a Lieutenant (j.g.) U.S.N.R. stationed on an escort carrier in the South Pacific, and has seen action in several engagements including Leyte, Lingayen Bay, Palau and at Luzon.

Honor Half-Century Employees

PHILADELPHIA, March 20, 1945—The evening of February 27 was a memorable milestone in the lives of three highly esteemed ladies. The occasion was a gala party given in their honor at Palumbo's famed cabaret-restaurant celebrating 50 years of continuous service with the well-known Philadelphia envelope and merchandise bag house.

The senior member of the trio was 79-year-old Emily Michael with 50 years of service to her credit. The undisputed champion in the point of service, however, was Ella Murphy, 66, who has been with Wolf Brothers for 51 years. But Catherine Cannon enjoys the distinction of being the youngest 50-year employee having started with the firm at the tender age of 15.

COMPLETE 50 YEARS WITH WOLF BROS.

William P. Brockermann, Jr., Wolf Brothers' versatile sales manager, did a bang up job as toastmaster while Howard Wolf made the presentation of a $50 war bond and $50 cash award to each of the honored guests together with samples of the work turned out by each during the day of the party.

Thus "50 years is a record with any firm" was the citation passed on to Emily Michael who had been making record bags. Ella Murphy who had worked on a catalog envelope for *Iron Age* discovered that she had become an inspiration through the expressed wish that "We hope to reach her 'Iron Age' as beautifully as she has." Catherine Cannon, whose specialty is air mail envelopes, was reminded that "Being single may have to do with giving the 'male' the air so many years."

One hundred and nine employees with combined service of over 2500 years with Wolf Brothers were present to pay their respects to this grand trio. Many other guests including former employees who still felt they were a part of the Wolf Brothers family also helped to make the occasion one which will long be remembered as an example of faithful service and group spirit rarely encountered these days.

Returns To Storrs & Bement

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 19, 1945—Spencer Lincoln, of the New Haven, Conn., office of Storrs & Bement Company, has returned to the firm as a salesman, having been honorably discharged after three years' service in the U. S. Navy. He enlisted in the Navy before the war broke out and was at Pearl Harbor at the time of the attack by the Japanese. He saw considerable action in the Pacific.

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending March 17, 1945

STOCKS

	High	Low	Last
A. P. W.	4⅛	4¼	4⅛
Armstrong Cork Co.	46	44⅜	45⅜
Celotex Corp.	16⅜	16⅛	16⅛
Celotex Corp., pf.	20¼	19⅜	20
Certain-Teed Products Corp.	8¼	8	8
Certain-Teed Products Corp., pf.	149	147	149
Champion Paper & Fibre Co.	32¼	31⅛	32⅛
Champion Paper & Fibre Co., pf.	112¾	111½	112⅛
Congoleum Nairn Co.	28½	28	28½
Container Corp. of America	28½	27⅜	27⅜
Continental-Diamond Fibre Co.	11½	11⅛	11⅜
Crown-Zellerbach Co.	23⅜	21⅜	23⅛
Crown-Zellerbach Co., pf.	104⅜	104⅜	104⅜
Dixie Cup Co.	20	18⅝	20
Dixie Cup Co.—A	48¼	47¾	48
Flintkote Co.	27⅜	26⅝	27⅛
Flintkote Co., pf.	105½	105½	105½
Robert Gair	6	5⅜	5⅜
Robert Gair, pf.	16⅞	16⅝	16¾
International Paper Co.	24⅛	23	23¾
International Paper Co., pf.	93½	90⅛	93
Johns-Manville Corp.	108¾	106½	108¾
Johns-Manville Corp., pf.	...	...	...
Kimberly-Clark Corp.	45	44	45
Mac Andrews & Forbes	...	...	...
Mac Andrews & Forbes, pf.	151	149	151
Masonite Corp.	44½	43	43½
Mead Corp.	14	13	13
Mead Corp., pf. A—6%	101¼	101	101¼
Mead Corp., pf. B—5½%	98¼	97	97¼
National Container Corp.	14¼	13⅜	14
Paraffine Companies, Inc.	67	64½	67
Paraffine Companies, Inc., pf.	...	...	...
Rayonier, Inc.	18¼	17⅜	17⅜
Rayonier, Inc., pf.	36⅛	35⅜	36¼
Ruberoid Co.	36⅜	36⅜	36⅜
Scott Paper Co.	45	45	45
Scott Paper Co., pf.	112½	112½	112½
Sutherland Paper Co.	...	...	...
Union Bag & Paper Corp.	16¼	15⅜	16
United Paperboard Co.	7	6⅜	6⅜
U. S. Gypsum Co.	82¾	81	81½
U. S. Gypsum Co., pf.	...	...	...
West Virginia Pulp & Paper Co.	24½	24	24½
West Virginia Pulp & Paper Co., pf.	110½	109	110½

BONDS

Abitibi Pulp & Paper Co. 5s '53	104	103½	103½
Celotex Corp. 3¾ '55	103¼	103¼	103¼
Certain-Teed Products Corp. 5½s '48	101½	101¾	101¾
Champion Paper & Fibre Co. 4¾s '50	...	...	...
International Paper Co. 6s '55	111¼	110	111
International Paper Co. 5s '47	104¼	104	104¼
Mead Corp. 3½s '53	...	...	...
West Virginia Pulp & Paper Co. 3s '54	...	...	...

New York Curb Exchange

High, Low and Last for Week Ending March 17, 1945

STOCKS

	High	Low	Last
Great Northern Paper Co.	37⅛	37⅛	37⅛
Hummel-Ross Fibre Corp.	7¾	7¾	7¾
St. Regis Paper Co.	6	5¾	5¾
St. Regis Paper Co., pf.	...	...	...
Taggart Corp.	6¼	6⅛	6¼

BONDS

American Writing Paper Co. 6s '61	100	100	100

St. Regis Paper Widens Activities

The annual report of St. Regis Paper Company and consolidated subsidiaries, shows that the company has reached an important level in the production of wood cellulose products which R. K. Ferguson, president, says places it in an advantageous position toward continued development in the post-war period. The company's position has been greatly strengthened through the sale of older and less efficient plants by corporate simplification and financial rehabilitation, operating integration, product improvement and diversification and new produce research, Mr. Ferguson states.

Entry into the rayon manufacturing field, improvements in specialty lightweight groundwood papers, broad plans for producing bleached groundwood paper, a widening of the fields of use of paper shipping sacks, opening of a new bag plant at North Kansas City, Mo., and the rise of the company, through its Panelyte division, to a position of importance in the laminated plastics industry, are other features stressed in the 1944 report. The company now manufactures some 65 grades of laminated resinous structural plastics which are molded and fabricated to specification and are shipped ready for assembly.

Through the purchase last year of 90 per cent of the common stock of Skenandoa Rayon Corporation, makers of high quality filament yarn by the viscose process, St. Regis further broadened its position as a major producer of cellulose products.

Net sales, royalties and rentals reached an all-time high at $48,388,277, comparing with $25,527,784 in 1943, the report shows. Net income was $5,584,649 against $2,951,718, and profit after provision for income and excess profits taxes and after deduction of minority interests in income, $1,853,513 compared with $1,855,927 in 1943. The company's capital structure was revised under a plan which became effective July 1, 1944.

The company's current position was further strengthened with total current assets at December 31, 1944, or $22,646,124 and total current liabilities of $4,190,789. The current assets include cash of $8,431,902 and United States Government securities of $1,682,696.

Champion Co. Profits Up

The Champion Paper and Fibre Company and subsidiaries for the twelve weeks to February 4, reports a net profit of $429,181, after Federal taxes of $1,106,360, equal to 49 cents a common share. In twelve weeks to January 30, 1944, net profit was $325,387 after taxes of $1,061,324, equal to 36 cents a share. Forty weeks to February 4: net profit, $1,502,118, after Federal taxes of $4,256,375, equivalent to $1.77 a common share. In the forty weeks to January 30, 1944, net profit was $1,523,609, or $2.03 a share, after taxes of $3,818,366.

A. P. W. Nets 38 Cents

The A. P. W. Products Company, Inc. for the twenty-eight weeks ended January 13 reports net sales of $2,591,470, and net profits of $60,218, equal to 38 cents a common share, compared with net sales of $2,779,738 and net profit of $32,967, or 21 cents a share in corresponding weeks the year before.

Celotex Co. Nets 13 Cents

The Celotex Corporation for the quarter ended on January 31, reports consolidated net profit was $137,310, equal after preferred dividend requirements to 13 cents a share on 755,472 common shares, comparing with $81,885, or 5 cents a share, in the same period of the previous fiscal year.

Hinde & Dauch Earns Less

The Hinde & Dauch Paper Company and subsidiaries for 1944 reports a net profit of $960,255, equal to $2.17 a share on sales of $24,356,764, against 1943 net of $996,530, or $2.27 a share on sales of $24,848,076.

San-Nap-Pak Earns 32 Cents

The San-Nap-Pak Manufacturing Company, Inc. for 1944, reports net profit was $94,341, equal to 32 cents a share, against $90,181, or 30 cents, in 1943. Net sales were $5,715,008, against $5,583,407.

Encyclopedia of Chemical Technology

Set up as a five year project, the first Encyclopedia of Chemical Technology, now in preparation in this country, will be designed specifically for use in the Americas, according to an announcement made today by the co-editors, Dr. Raymond E. Kirk, head of the Department of Chemistry and Dean of the Graduate School, and Dr. Donald F. Othmer, Professor of Chemical Engineering and head of the department at the Polytechnic Institute of Brooklyn.

Miss Janet D. Scott, who for the past ten years has been a research librarian with industrial companies and who is known in the field of chemical bibliographical work, has been appointed assistant editor. She was formerly with "Chemical Abstracts" and the Calco Chemical Division, American Cyanamid Company. The editorial office is at the Polytechnic Institute of Brooklyn, 85 Livingston Street. To sponsor the project, a new corporation, the Interscience Encyclopedia, Inc., has been established by Interscience Publishers, Inc.

According to Dr. Kirk, there have been a few publications coming under the general heading of dictionaries, but no encyclopedia of chemical technology in the English language. When completed the new encyclopedia will be in a ten or twelve volume set, with the first volume scheduled to appear in April, 1946. The only equivalent to this new work is an already out-of-date German encyclopedia which has sold widely because of the need for such a reference book on the part of the industrial chemical engineer who is saved considerable time in a library by its use. The Encyclopedia of Chemical Technology will cover both products and processes. In the case of products, there will be a very brief description of the properties, a brief historical summary of the method of making and a clear concise account of the modern manufacturing process. Equipment of the chemical industry also will be described in considerable detail.

With such a book in hand a grower in the West Indies in banana production who wishes to know something about modern dehydration will be able to find out about the equipment needed and the general process.

Dr. Kirk gave this as an example because of the fact that Dr. Othmer was called to the West Indies a year ago to solve just such a problem.

REDUCE REGISTER COMPLAINTS

If printers and lithographers will use the *Cambridge* Printers' Moisture Indicator to determine the relative humidity of paper and pressroom, they are in position to avoid the most common cause of "off register." This accurate, rugged instrument has the measuring element enclosed in a blade for insertion between hung or stacked sheets. An adjustable index pointer is provided for fixing reference points.

Write for descriptive bulletin.

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CAMBRIDGE
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Chicago Packaging Club

To bring together and coordinate the many separate factors necessary for proper packaging and shipping, the Chicago Packaging Club was recently formed. It provides a sounding board for inter-related packaging problems in the Chicago area, which is one of the largest industrial packaging areas in the world.

The basic purpose of the club is to bring together at regular meetings producers of packaging materials, packaging designers and engineers, producers of machinery and supplies for packaging or package handling, users of packaging and packing, and other related interest such as railroads, truckers, airlines and other carriers.

Regular luncheon meetings are held on the second and fourth Mondays of each month at the Builders Club, 228 North La Salle street, Chicago, Ill.; and although the club has been in existence only a few months, it already numbers among its members representatives of most of the leading factors in the packaging and allied fields in the greater Chicago area.

At these meetings many interesting moving pictures have been shown and talks given on such subjects as Army, Navy, and Ordnance packaging; palletized loading; the future of the V-box; shipping standards on a performance basis; new freight car loading methods; and other subjects of equal interest.

The club has adopted a constitution and by-laws which provide for direction by a board of governors consisting of seven members, headed by a chairman. The chairman and board of governors are: C. Stewart Macnair, C. S. Macnair and Associates (chairman); Harry J. Bettendorf, co-publisher, *Fibre Containers*; Frank H. Biederman, advertising-merchandising, Kimberly-Clark Corporation; John G. Bucuss, Manager Strapping Division, Acme Steel Company; John S. Gorman, vice president, Signode Steel Strapping Company; Don L. Quinn, Don L. Quinn Company; and Frank A. Wilcox, purchasing agent, Kraft Cheese Company. Terry M. Prokop is secretary-treasurer. Headquarters of the Club are at 228 North La Salle street, Chicago 1, Ill.

Bulletin on Curling

A research bulletin on the curling of paper will be forthcoming in the near future, the Lithographic Technical Foundation has announced.

According to the Foundation's research director, Robert F. Reed, the bulletin will cover the three basic causes of curling. Reel curl, which occurs in paper cut too close to the core of the reel, usually occurs in only every third, fourth, fifth, or sixth sheet in the pile, and is always against the grain of the paper. The curl which results when one side of a sheet is moistened or dried more than the other—when too much water is run on the press, for example—is always toward the drier side of the sheet, and always with the grain. The curl produced when a sheet undergoes a radical change in moisture content, even though the change is uniform throughout the sheet so that both sides are affected equally, is related to the two-sided nature of paper—the difference in character between the felt side and the wire side—and tends to be with the grain.

Individually and in combination, these factors cause paper to perform antics which often seem as perplexing as they are troublesome. However, an understanding of the basic causes of curling makes such antics much less puzzling, and the forthcoming bulletin will explain how the lithographer, by proper conditioning and handling of paper, can overcome some of his pressroom troubles.

Successful Combinations

Bread and Butter just naturally go together to make a satisfying whole . . . and no less successful is the combination of skilled craftsmen and Langston machines.

Like many other nationally known concerns The Paterson Parchment Paper Company of Bristol, Pa., uses Langston Slitters and Roll Winders, in making their famous "Patapar" vegetable parchment.

Wherever paper is processed; in the mill, the finishing room, or the paper converting plant, Langston Slitters and Roll Winders are giving dependable, trouble-free service.

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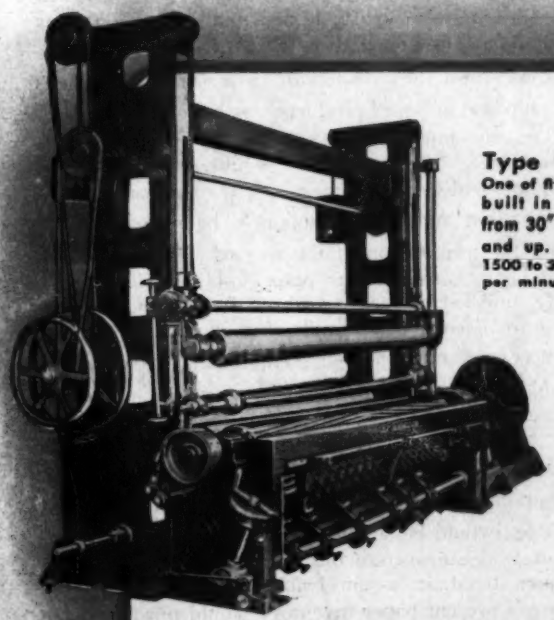

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PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off.
Henry J. Berger, Editor

COMING EVENTS IN PAPER INDUSTRY

New England Section. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

Delaware Valley Section. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

Lake States Section. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

Kalamazoo Valley Section. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

Empire State Section. Technical Association of the Pulp and Paper Industry—Second Thursday of each month at the Woodruff Hotel, Watertown, N. Y.

Chicago Professional Paper Group. Third Monday of each month except July and August at Chicago Bar Association, Chicago, Ill.

GEORGE SAXE MACDONALD

The death is announced with deep sorrow of George Saxe Macdonald, who for almost the past quarter of a century has been the publisher of the Paper Trade Journal and Lockwood's Directory of the Paper and Allied Trades.

George Macdonald was a vital personality. This fact was constantly demonstrated throughout his life. It was first importantly manifested when his education was discontinued early in life against the wishes of his father who greatly desired him to enter the medical profession. He had no patience, however, with the idea of spending long years of comparative inactivity in preparing himself for a professional life. He personally preferred a business career for which he felt himself temperamentally and otherwise better fitted. This estimate of himself proved correct for he soon showed decided business ability and made successes of various ventures where others had failed or met with only indifferent success.

It was characteristic of him that, although bed ridden for a considerable time, he kept more or less in touch with his business affairs until shortly before his death.

Mr. Macdonald was progressive in his ideas. He did not hesitate to make any changes in his publications that would make them more interesting or more helpful to the industry. He did not undertake changes of any character, however, until he was absolutely convinced that they were worthwhile and that they would be likely to meet with the approval of the great majority of the subscribers to the publications. He hated waste not only because he was of a thrifty disposition, but because he disliked to see the fruits of labor indifferently treated or carelessly destroyed without doing anyone any good.

Of a gruff disposition apparently, this covered emotions which influenced him to do many friendly acts and charitable deeds which were not commonly known.

Mr. Macdonald's integrity, his business acumen and his highly developed publishing instinct have left a deep impress on the Lockwood publications and his influence exerted on these publications over a period of many years will long survive his death.

PAPER BOARD SUPPLY

Increasing demand for paper board creates a more tense supply situation. The most serious shortages are in container board and in fiber boxes. Lack of manpower in plants producing these types of board is the major problem, the WPB indicated in a late report. The agency also stated that at a recent joint meeting of the Container Board and Fiber Box Industry Advisory Committee, an immediate survey of manpower conditions was recommended. As these plants operate with relatively few workers, the report went on to state, loss of even a few men is at once reflected in lower output. Manufacturers will be asked to advise WPB of the additional quantities of V-boxes that could be produced with increased personnel. The V-box program is now established at 335,000 tons a quarter, but may have to be increased. Stressing the need for conserving kraft, it was recommended that less essential boxes should not be made of kraft and that the production of container board be maintained at the 1944 level, because of its essentiality, although production of many other paper products may be curtailed. A total of 71,565 tons of V-board was consumed in December, 1944, of which 52,996 tons were kraft; 11,312 tons jute; 7,220 tons container chip, and 37 tons were of other types.

Concern at the prospect of more serious shortages in pulp and in paper products was indicated last week in the amendment voted by the House Foreign Affairs Committee. The amendment would prohibit the use of the Lend-Lease program for post-war relief, rehabilitation and reconstruction. The principal need after the termination of the war, it was pointed out, will be to conserve our pulp supply while sending only finished paper abroad. Exportation of pulp to start French paper mills, for example, would be unnecessary and short-sighted, it was explained. It would cut about two-thirds of its own pulp, import the balance from Sweden. The sound procedure would be to help them start their pulp cutting as soon as possible; meanwhile supplying them with the finished paper immediately required. Whatever newsprint is shipped would be supplied by Canada. As to the immediate significance of the Byrnes committee, a press report stated, it is conceivable that a review of the Army's present paper inventory would uncover some excess stocks that would permit relief in the civilian use of certain types of paper. Last year, the report stated, the Army bought groundwood papers up to 100% of the industry's sheet-cutting capacity. In addition, the Army bought heavily of container board for V-boxes and wet-strength papers for maps.

Allocation of wood pulp for the second quarter of 1945 totaled 2,599,700 tons, for the production of a minimum of 4,371,237 tons of paper and paper board. This compares with 4,401,963 tons minimum in the first 1945 quarter. The minimum production of paper and paper board in the fourth 1944 quarter was 4,358,460 tons, of which 2,328,460 tons represented the seven major classified types of paper board. Container board in all classes comprised the leading item. In the estimates authorized last week by the Requirements Committee of the War Production Board, the minimum paper production for the second 1945 quarter was set at 1,951,320 tons, and paper board at 2,419,917 tons, compared with 2,030,000 tons of paper and 2,371,963 tons of paper board in the first 1945 quarter. The program determination of the Requirements Committee also listed a number of types of paper and paper board as having preferred production status, with specified tonnages. Included were certain military, industrial, business, shipping sack, sanitary, toilet, and wrapping papers and container board.

The listed minimum quantities of paper and paper board, subject to minor changes that may be made by the Forest Products Bureau, indicates increases in only two types of paper; an increase of 2,500 tons in special industrial types, and an increase of 3,700 tons in building paper. In paper board, the following types showed an indicated increase as follows: container board 33,369 tons; folding boxboard (waste) 16,333 tons, and building board 23,052 tons. These figures are, of course, subject to revision. As the supply of new shipping containers became more critical in the last 1944 quarter, amendment to Order L-317 went into effect on January 1, 1945, reducing by 5% the use of new fiber containers for non-military use. That amendment limited the quarterly use of such containers to a number that will require only 95% of the total container board (by weight and area) in the containers lawfully used by a packer in the corresponding quarter of 1944. All appeals were cancelled by this amendment, and containers for military purposes in 1944 are excluded from the base upon which the quotas for 1945 are computed. Containers for military use in 1945 are not chargeable to the packer's quotas. The WPB report states that sharply increased activity in the various war fronts creates an even heavier demand on cartons for military supplies, and this need can only be met by greater conservation at home.

Severe weather, the freight embargo and fuel shortages have hampered the delivery of paper board for fiber drums, but conditions are now improving. Second quarter allocations of paper board for drums will be announced later. The WPB stated recently that if second quarter allocations of paper board are reduced from first quarter levels, further restrictions under Order L-337 may be necessary. Because of the continued tight supply situation in paper board, fiber drum users are urged by the WPB to practice the utmost conservation.

PULP AND PAPER

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SPECIAL BULLETIN FOR PAPER MANUFACTURERS ON

WAX SIZES

Present market conditions indicate a partial substitution of Wax Size for Rosin Size. For, in view of the known statistics on dwindling supplies, it appears that paper mills will be compelled to get along with much less Rosin Size in 1945 than was consumed in 1944.

The situation is not as alarming, however, as it might be if no substitutes were available. Cyanamid has at least one series of products already developed and in successful commercial use for many years — Alwax and Waxine Sizes. The superiority of these Wax Sizes in making paper water-resistant has become well established. They also are known to improve such other qualities as pliability, printing, and resistance to penetration of inks and other organic liquids.

The exact extent to which Rosin Size can be replaced with emulsions of petroleum wax has never been completely determined. Even partial substitution in some grades of paper would be undesirable. However, a large volume of papers can be sized successfully, partially with rosin and partially with wax. In many grades, the introduction of wax results in improved paper quality.

The use of Wax Size has also proved economical. Over the past three years Rosin Size prices have tended upward, while the market on our Wax Size has remained stationary. When the tremendous effectiveness of Alwax and Waxine Size in producing water-resistance and other improved qualities is taken into consideration, the combination of the two types becomes decidedly economical for the paper mill.

Cyanamid personnel is well trained and experienced in the application of wax emulsions to every type of paper where they can be used. They will be glad to consult with you at your request, giving every assistance necessary in making any changes in your sizing set-up to meet this emergency.

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Section of the
TECHNICAL ASSOCIATION
OF THE PULP & PAPER INDUSTRY
122 E. 42nd St., New York 17, N. Y.
Edited by R. G. Macdonald, Secretary

The Crown Willamette Paper School*

By A. G. Natwick[1]

In the late Summer of 1933 the idea of establishing a course of instruction at the Crown Willamette Paper Company, Division of the Crown Zellerbach Corporation, Camas, Washington, was conceived. The autumn of that same year saw the beginning of an educational project which has for the past twelve years been of benefit to those of our employees who were deprived of a college education or in many cases a high school education, as well as to those who have obtained their degrees in science and engineering, and to the company which employs them.

The Camas Mill, employing 2,300 persons—450 of whom are women, is situated on the Columbia River, about 20 miles east of Portland, Oregon, and is the largest operating unit of the several Crown Willamette Mills. At this plant an extensive range of specialty papers is manufactured from the mill's own production of groundwood, unbleached sulphite, bleached sulphite, sulphate and semibleached sulphate pulps. The mills are producing 340 tons of bleached and unbleached sulphite, 200 tons of sulphate, 55 tons of groundwood, and 435 tons of paper, besides conversion of large quantities of bags, napkins, toilet tissue, and towels. The number and range of grades manufactured is large, which circumstance has fortunately provided a distinct advantage in the development of the paper school. The scope of the curriculum of instruction has thereby been unusually broad, extending itself into phases of pulp and paper manufacture not normal to many mills. The student is given the value of instruction by actual observation of operations on many diverse phases rather than being obliged to seek the more abstract and thereby less assimilable methods of book instruction alone. The scope of opportunity which a mill is able to offer to students who seek self-education is obviously closely related to the degree of the school's success.

Formation of School

The major reason for establishing this study course was due to frequent requests from employees for some arrangement whereby they might gain a broader knowledge of the pulp and paper industry, of their own work and its relation to the complete operation.

Interest was expressed in the possibility of gaining knowledge of the industry in all its phases—from the tree to the finished product, sales of the product, and uses of the paper. There was no particular information available which might be a guide to starting a study course such as seemed to be necessary to meet the requirements of the employees in this particular plant. We recognized that this must be a pioneering effort, and that it should be broad enough to cover not only the Camas plant, but all of the paper industry.

The first notice that such a school would be started appeared on September 18, 1933, and departmental supervisors were asked to select a certain number of students from each department so that the total would not exceed forty. In a comparatively few days we were advised that 190 had applied, and it was recognized that this school could not be restricted to certain employees who might be chosen by the foreman and supervisors. We, therefore, decided that the course should be open to any employee of the Crown Zellerbach Corporation—not only at the Camas plant—but in the Portland and West Linn, Oregon, areas. It is our opinion that the primary reason for the successful conduct of the school from its inception has been due, perhaps, to the fact that the course has been available to any who wished to take advantage of the opportunity for further education.

During the first year of the school 24 classes were held and lectures were given by supervisors from our own plant, as well as by capable operators from other plants, on subjects covering the whole operation in general from wood, manufacture of pulp and paper, converting, and on through management problems.

We felt that this one educational effort would take care of the situation for a few years, at least, until another group of students showed some desire to learn more about their industry than would be possible by working in one of the departments of the plant. However, the following year a great number of requests came to us for a continuation of this paper school course by those who had completed the first year.

Subsequent school terms, therefore, have begun each year the latter part of October and continued until the second week in March covering a 20 week period.

Thus came the organization of the second year class and subsequently the third and fourth year classes, the latter of which comprises an earnest group, selected naturally through the rigors of the requirements for completion of the previous three years' study. It may be said, however, that the student who finally completes the fourth year represents an employee so well informed in his better knowledge of the phases of pulp and paper manufacture as to command particular consideration when selection of men for promotion to larger responsibilities is in order. The joint effort expended thus does become of mutual benefit to the employee and the mill.

* Presented by title at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 19-22, 1945.

[1] Assistant Resident Manager, Crown Zellerbach Corp., Camas, Wash.

The Crown Willamette Paper School is naturally limited to employees of the various Crown Zellerbach organizations, and is unique in one respect in that it has incorporated a foreman-employee relationship not generally found in organization and conduct of paper schools. This relationship, the value of which is now so clearly recognized, has arisen from the method of instruction chosen at the outset, and was not deliberately conceived in the first place, although it is now emphasized and encouraged. We refer to the conduct of the school whereby the mill superintendents and foremen are the lecturers and instructors in their particular fields, without recourse to formal method of textbook instruction. Obviously, the conduct of four such paper school courses places a heavy demand upon extra time of those charged with the responsibility of carrying on the school. A natural temptation, to be avoided, is to resort to the more conventional method of instruction; namely, placing all lecturing into the hands of one or two designated individuals who might qualify even better in the art of teaching and who would devote their time to paper school as their regular job. On the other hand, Camas Mill superintendents and foremen have themselves become increasingly proficient in their presentation of the subject matters. A textbook called "Making Paper" has been compiled using transcripts of the lectures given by men who are skilled, each in his own field. This book furnishes a complete reference for the student to pursue in collaboration with his current lecture.

Courses of Instruction

This does not mean that available literature on pulp and paper manufacture of such nature as to be assimilable by the average mill employee has been denied him. On the contrary, a large range of material is provided for his further reference. The essential elements of the instruction, however, which he must satisfy for recognition as a graduate of a course, is taken from the material presented to him by his own superintendent and foremen and by the superintendents and foremen of the other operating units of the mill. We have come to regard this system of instruction as peculiarly effective, because the material presented to the student is thus the fruition of many years of practical operating experience on the part of able men who know considerable about pulp and paper, but publish nothing. A few hours of instruction in the fundamentals and intricacies of paper machine operation made clear by a paper mill superintendent, for instance, whose record of service is over many years and whose responsibilities have grown in those years, can hardly be compared with a method which sought to present the same subject matter from a textbook.

It is probable that a degree of the success of the paper school may be attributed to the liberal policy adopted early by the mill management in respect to financial outlay annually for its conduct and maintenance. No charge whatever is made to the student, he being provided at the beginning of his course with a copy of the textbook which is required to be returned at the end of the school year. However, if a student should care to buy one of these books, they are available. Instruction by illustration, a fundamental principle of teaching, is stressed. At each lecture where such are applicable, exhibits are set out for the lecturer's use. Photographs, drawings, tables of data, and microscopic slides are provided and made use of by practically every lecturer. This material is carefully filed and continually added to, thereby making available more complete data from year to year. In further extension of instruction by illustration, the paper school has provided itself with a set of colored motion pictures showing the complete papermaking operation of the Camas plant from log rafts to the converted product. These moving pictures have added much to the interest and instruction for the entire course.

The first year class is shown the motion pictures along with the lectures for the purpose of giving them a general idea of the complete mill operations. To the second year class, definite and specific details of Camas operations are shown and studied by means of the motion pictures. The third and fourth year classes do not use the pictures except to clarify some point in discussion. Several excellent industrial films are made available each year which are either directly or indirectly connected with the paper industry. Every opportunity is taken to invite prominent members of the industry, who may be visiting the Pacific Coast, to appear as paper school lecturers and add their contribution of new information and points of view.

First Year

In the first year it is intended to present at a weekly lecture of one and one-half hours, only the elementary and broad picture of fundamentals of chemistry, physics, electricity, wood—its preparation for pulp making, and steam; the principles of the chief pulping processes, the place of water in pulp and papermaking, the screening and bleaching of pulp, its preparation as furnish for the paper machine, the paper machine operation, paper finishing, paper converting, purchasing, and mill management. No attempt is made in the first year to specialize. Lectures are prepared and delivered by mill superintendents and foremen each in his turn.

Second Year

The course of study for the second year directs close, almost exclusive attention, toward studying wood preparation, pulp processing and papermaking, specifically as carried on at the Camas mill without particular reference to pulp and papermaking as conducted by other mills or other principles not in use at Camas. The enlarged features of the second year course which provide this emphasis are the moving pictures and mill visits. The second year students attend a weekly lecture of one and one-half hours and are also required to spend an equal weekly period in the mill in observation of that particular operation which had been covered in the previous lecture. Mill visits are made in groups under the guidance of a competent employee-instructor and at periods compatible with the employee's requirements of tour work. On this visit the subject matter of the lecture, which had already given the student a picture of the process, is now fixed in his mind twice over by visual perception.

Third Year

Beginning with matriculation in the third year the student comes to depend largely on his own intitiative and effort. Eight formal lectures are given, practically all of them by outside speakers—those on process and equipment usually by manufacturing representatives in allied industries who are authorities on the topics they discuss. Other lecturers in the third year are those who are competent to discuss their subjects, such as officers from the Unions and those who are employed in guiding human and labor relations in industry. Subjects covered are: Industrial financial reports, wage economics of the paper

industry, combustion, metallurgy, silvicultural methods in the production of pulp wood, conveying materials, human relations in industry, and labor relations in industry.

These contacts with men entirely disassociated from the mill organization provide the student with new viewpoints which lead to a broader scope of understanding. Each student is required to spend four hours a week, a total of 64 hours in mill study, allocated 16 hours each to wood mill, sulphate mill, sulphite mill, and beater operations in regular progression. Four evenings are devoted to general open discussion of problems in these departments, the supervisor of the department in question taking the chair. The mill studies required of this class are on an entirely different basis than the supervised mill visits of the second year class. The student is provided with a pass in his own name which admits him to all departments of the mill for his study at any time day or night. His aim is to apply himself to the particular department being studied as though he were preparing to become a responsible operating foreman. To be sure, this idea is scarcely fully realized except in the case of the more competent individuals; yet, it is surprising how well the student trains himself in the knowledge of wood preparation and pulp manufacture and develops in his powers of observation and interpretation.

Fourth Year

The fourth year is entirely similar to the organization of the third year. The third year graduate continues his independent line of study as applied, now, however, to phases of (1) types and operation of paper machines, jordanning and pumps, (2) finishing and converting of paper and shipping, (3) steam, electrical, and mechanical departments, and (4) a phase most important for his knowledge; namely, what constitutes the quality of paper products in respect to the particular trade the mill serves, and the importance of quality maintenance. This requires an understanding of the whole subject of technical control. As in the case of the third year, outside speakers are invited to speak on subjects disassociated with the industry, but different from those discussed in the previous year, such as: Principles of hydraulics, pumps, and pumping; heating, ventilating and air conditioning; evaporation; and instrumentation. The fourth year student is also expected to attend lectures on wage economics of the paper industry, human relations in industry, labor relations in industry, and industrial financial reports.

Supervision

Executive supervision and direction of the Crown Willamette Paper School policy is exercised through a Board of Regents, comprised of three members; a Vice-President, the Camas Resident Manager, and the West Linn Resident Manager. The immediate control and direction of curriculum and instruction is given to an assistant resident manager, acting as Dean of the school, and the technical supervisor of the mill, acting as Principal. The latter appointment is most advantageous to serve the purposes of this school, in that the technical supervisor has naturally at his command a more centralized view of the entire mill operations.

One professor for each course is appointed by the Dean, Principal, and Board of Regents; however, in the case of the third and fourth year classes where more personal contact from Faculty and student is necessary, each professor has an assistant.. Four Advisory Faculty Board members, who are so chosen because of their ability to direct contact with the various departments, make themselves available for any information or assistance that is required of them by the school. In addition to this there are 32 mill instructors who lecture to the four classes. There are usually at least twelve outside speakers lecturing to the four classes throughout the school year.

Registration and records of attendance are given to a member of the technical department staff as an appointed Registrar, and the quality of work done by each student as reflected in his attendance to lectures and his examination records are closely watched through this office of Registrar. One can appreciate that with from 100 to over 300 employee-students, the majority of them occupied in tour work where attendance to more than three successive weekly lectures out of four is almost out of the question, with the inconvenience of a ready contact with tour workers in matters of any individual consultation, it is necessary that the work of the Registrar be carefully done.

Graduation Requirements

It is, of course, important to know by what standards the student is finally judged as having completed the requirements of the respective courses. Students of the first and second year classes are examined regularly through thorough written examinations which they are permitted to prepare on their own time and with the aid of whatever textbook material or consultation they may choose. In these, the more elementary courses, it is assumed to be most important to the student's benefit that he has fixed in his mind a well defined picture of pulp and papermaking operations by being required to review the instruction he has received, rather than to embarrass him with the possibility of discouragement by a method of examination whereby he would have to depend entirely upon his memory. It is the aim to be as helpful to employees who did not complete grammar school as to the college graduate, to the extent of his own enthusiasm for bettering himself in his knowledge of pulp and papermaking.

Examination of the third and fourth year students is carried on in quite a different manner, it being felt that the students having passed through the two years of elementary study and having fulfilled the requirements of individual mill observation, should be able to write comprehensively upon any process or operation without recourse to notes or text.

Whatever earnestness the employee chooses to exert accrues to his benefit through the mill's personnel office, inasmuch as his paper school record is filed therein and is taken into consideration in any selection for promotion to jobs requiring an increased sense of responsibility. Encouragement is also given through liberal presentation of awards. For example, the two men who are judged as having most successfully completed the requirements of the fourth year class are given the privilege of a week's trip of inspection and observation to the Pacific Northwest pulp and paper mills at the expense of the school budget.

The liberal policy of the mill management is extended into the graduation exercises at the end of the school year by having as their guests all of the students at a graduation banquet for the purpose of awarding diplomas and special prizes to those who have won recognition by scholastic achievement in their particular course. The best speakers available in the Pacific Northwest are invited to address the

students and doubtless the excellent talks that have been given in the past have been a source of inspiration to many, not only to carry on with their school work, but to more vigorous determination and effort toward bettering themselves for their particular field in the mill and the next progressive step in the line of advancement.

Student Body

Since 1941 the impact of war has been felt to such an extent that two hundred students who had completed one to three years of paper school work are now found in the armed forces, while 35 of 155 who have completed the four year course are to be found in all parts of the world, fighting with the U. S. Forces—many of them holding commissions up to the rank of Lieutenant-Colonel. Even the faculty has contributed its quota and three of its fifteen members are to be found in the U. S. Navy.

The fame of the paper school has spread to many different parts of the world, and prior to the war requests for information came from the Scandinavian countries and Finland, and more recently we have had requests for information from India and several of the South American countries. It is, perhaps, noteworthy that in 1942 when the German and Russian armies were struggling to the death in Stalingrad, requests were received from the Russian Government for full information on the paper school.

In recent years an increasingly larger number of women have attended the school and find that this training is of particular value to those who have taken men's jobs in the technical department and to secretaries and stenographers in acquiring knowledge of the subjects which they are continually handling in correspondence and reports. Over the approximate twelve years of its existence, the school has served students ranging in age from 16 to 72 years, the oldest student being a mill mechanic who was completing his 48th year as an employee of the company. It is, perhaps, of interest to know that the average age of the students has increased from 26 years in the school year of 1939/40 to 35 years in the school year of 1944/45, which indicates a very substantial increase in the average age since Pearl Harbor. While this type of voluntary education seems desirable to persons of any age, it is not unusual for husband and wife to attend school together where both are employed in the mill, and also for father and son to go to their evening class and study the same subjects.

While the expenditure on this project has been rather large over the period in which the school has been operating, we find that there has been a total of 1,608 school years completed and that the cost of a student school year is slightly under $15.00. This includes all items such as the printing of the textbooks, the motion picture films, slides, projectors, and other necessary equipment.

Credits

It has, indeed, been gratifying to have recognition by the University of Washington and Oregon State College to the extent that full credit is extended to the students for their work in the Crown Willamette Paper School. This may be applied as credits in the College of Forestry and Engineering, including chemistry and chemical engineering at the University of Washington, and in the Schools of Forestry, Chemistry, Chemical Engineering and Mechnical Engineering at Oregon State College. A student must meet the scholastic requirements of the University or College and be enrolled in one of its several courses to take advantage of the credits which he or she may have built up.

Here, then, is a pioneering effort in industrial education recognized by the highest institutions of learning in the land which has served its students through depression and war for a period of approximately twelve years. Through the foresight of executives and management, and with the unceasing efforts of foremen and superintendents as instructors and lecturers, we have built what may prove to be a future industrial educational pattern.

Plastic Overlays for Douglas Fir Plywood*

By J. D. Long[1]

Abstract

A new combination material consisting of resin-impregnated pulp, paper, and fabric hot-pressed to the surface of wood veneer and plywood has been put into production in the Douglas fir plywood mills in the Pacific Northwest. Currently only two types of these "overlay" materials are in production, but laboratory experiments indicate the post-war production of a wide range of materials for various optical, physical, and chemical characteristics.

The overlay materials consist of carrier sheets which have been impregnated with thermosetting resins which are polymerized to a stable, easily-handled form in the sheet. These are placed on the two faces of the veneer or plywood, covered with suitable sheet metal cauls and placed in flat-platen hot presses. Under proper hot-press assembly, selected for the resin and assembly in question, the plastic overlay fuses to the wood base.

The carrier sheets exhibiting the most attractive possibilities are pulp and pulp screening sheets of 15 to 50 points thickness, and paper sheets of 5 to 10 points. The former usually carry resin impregnations of 15 to 35%, and the latter 35 to 70%. Phenol formaldehyde, dimethylolurea, and melamine resins are currently of greatest interest.

The finished panels present smooth, durable faces with colors or patterns as desired. The natural wood grain may show through the face or be entirely masked. It is possible to impress a texture or die into the face. The lower resin content overlays particularly serve as excellent bases for paint and enamel finishes. Laboratory work is in progress to determine the various physical and chemical properties, and the fabrication characteristics of the wide range of such assemblies.

Douglas fir plywood as produced in the Pacific Northwest is a construction material exhibiting excel-

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Acknowledgment is made of the work of E. G. Gross, research wood technologist, J. H. Moran, research chemist, and other laboratory personnel in this project.

lent structural and physical properties. The truth of this assertion and of the wide utility of the material is the fact that the entire production of plywood panels is still on high military allocation.

The two main types of plywood are distinguished by their use of either a protein or a synthetic resin adhesive. Since these adhesives are produced by one group of the plastic material suppliers, and since plywood itself can be formed and molded, the plywood panel as such is sometimes considered as being a plastic material.

Plastic resins can also be impregnated into the wood veneers themselves, surrounding and penetrating the wood cells, giving new physical and chemical properties to the product and bringing it more closely into the realm of plastic materials.

Plastic sheets can be applied to the face of plywood panels in order to alter their optical, physical, or chemical properties. The technique of gluing a preset plastic laminate to a plywood panel backing has been followed for a number of years. More recently it has been discovered that uncured resin-impregnated pulp, paper, and fabric sheets can be self-bonded to the plywood panel face by conventional hot-press methods.

From the foregoing discussion it will be seen that plastic impregnating and adhesive resins may be used between the wood veneer layers, incorporated in the body of the veneer itself, or applied as an overlay surfacing. The latter is the subject of this presentation.

Development of Overlays

The art of "veneering" which led to the development of plywood, is as old as history. This technique consists of gluing attractive wood veneers to a wood panel base.

Patents were issued about 25 years or more ago for procedures in which cellulosic materials were glued to wood bases in order to secure altered surface characteristics. With the advent of the plastic industry it was logical that inventors should conceive the idea of impregnating these surfacing materials with plastic resins. A half-dozen or so patents on various phases of this type of application have been issued during the past decade. The United States Forest Products Laboratory and Institute of Paper Chemistry contributed to the knowledge on resin-impregnated paper during the same period.

Under the stimulus of a war-time economy the process was recently "discovered" as being commercially feasible, and, starting somewhat less than two years ago, reprocessed impregnated helmet-liner stock was applied to plywood panels in our member mills, to produce a new type of war material. Subsequently, other types of paper stock have been impregnated for this use. The surfaced panels have gone into a wide variety of military uses where mechanical abrasion resistance, moisture vapor transmission, and moisture absorption were critical factors.

Veneer and Panel Assemblies

Plywood panels are made up of layers of wood veneers which have been cut in thicknesses such as 1/10, 1/8, and 3/16 inch. In the Douglas fir plywood industry these veneers are cut on a lathe with the result that the surfaces are more or less rough. It has been found that overlays can be applied to this rough veneer to give smooth dense surfaces. Some of the thicker paper and pulp carrier sheets have excellent masking properties in that they not only smooth the surface but will cover small defects in the veneer. The possibilities of "upgrading" wood veneer to give a product with more attractive market potentials is of definite interest to the plywood industry.

Built-up plywood panels with rough face veneers can also be covered with overlays but for most uses it will probably be preferable to put the panel through a sanding machine or planer in order to control the finished panel thickness within an acceptable tolerance.

Carrier sheets of 5- to 10-thousandths inch thickness, colored to harmonize with the natural wood tone can be applied to rough or surfaced panels, permitting the beauty of the natural wood grain to show. Thicker or opaque carrier sheets can be applied to hide the wood grain and thus permit the use of any solid color or printed design desired.

It should be noted that in order to secure a balanced construction it is necessary that the overlay be applied to both faces of the plywood or veneer. It is not always necessary that identical materials be used on the two faces but the two overlay surfaces must have approximately equal thickness and equivalent physical properties.

Overlay Materials

As previously indicated, various types and thicknesses of carrier sheets, impregnated with various percentages and types of resin, may be used as overlays. It is obvious that a large number of combinations is possible.

At the present time an industry standardization program is being considered in which these products may be classified under three divisions or headings.

Class A materials, as our research staff is currently designating them, are relatively thick paper or pulp sheets of 15- to 50-thousandths inch thickness, carrying a thermosetting resin impregnation of 15 to 35%. A 30 point thickness with about 25% impregnation is probably the optimum. Because of their excellent physical properties and economic status, phenol formaldehyde resins predominate in this field. Some very interesting effects have been secured in the laboratory by the use of dimethylolurea resin. Products in this category may exhibit very attractive appearance but are primarily designed to take a paint or enamel finish. They have been found to provide a very stable paint base. Proper selection of overlay materials and application techniques results in complete masking of the wood surface.

Class B assemblies are of carrier sheets providing finished thicknesses up to about 10-thousandths inch thickness and carrying resin contents from 35 to 70%. Phenolic resins are again the type of greatest interest but melamine impregnated sheets offer some attractive possibilities. High mechanical abrasion resistance, very low moisture absorption, and low moisture vapor transmission characterize these overlays.

Class C, decorative overlays, is a convenient designation for the wide variety of special assemblies which may come into post-war markets. Various types of printed papers and fabrics can be used with melamine, dimethylolurea, and other clear, light-stable resins to give very attractive finish panels. Because of the special care required in manufacturing and the low volume potential of any one item in this category, the Class C overlays are the field of least interest at the present time.

Overlay Assembly

Various techniques have been used for overlay assembly depending upon the type of overlay, the thickness of the wood base, the character of the hot press and other equipment, and individual preference.

One type of overlay sheet in current production was originally applied to one face of a rough veneer

which was subsequently assembled as the face of a plywood panel. A second technique is to surface a plywood panel and to put it through the hot press a second time to bond the plastic overlay. This procedure has the advantage of permitting closer tolerance on thickness, as previously noted. Where thickness control is not an essential consideration it has proven possible to place the uncured overlay sheets and the rough wood veneers carrying a fresh glue spread, into the hot press. In one operation this bonds the wood veneer into a plywood panel with the plastic fused to the face.

One type of overlay now in production, after several years of research and development, consists of a highly polymerized sheet with a fresh glue spread at the bonding face. This type of overlay may be placed directly in the hot press; all other types of self-bonding overlays require that caul plates be used to prevent adhesion to the hot press platens. These cauls must be kept clean for attractively finished panel surfaces. They must be lubricated or a releaser agent must be mixed with the impregnating resin. Galvanized sheet steel cauls are most commonly used in the mills at the present time, but black iron sheets, sheet aluminum, and both highly polished and etched stainless steel sheets have been used in the laboratory to secure variations in surface appearance.

Press pressures of about 200 p.s.i. as are used in plywood production are commonly used for the assembly of overlays. With certain types of overlay materials, pressures up to 250 p.s.i. may be adopted. Press temperatures usually range from 280 to 300° F., with a maximum of 325° F. Press time varies from about 7 to 12 minutes depending upon the type of overlay and character of the assembly.

Close control of the moisture content of the wood veneer or plywood panel and of the overlay sheet is essential. A moisture content in the wood base of 5% with 0.5% tolerance is common practice although this may vary with the plastic flow of the overlay. Blistering or checking during the cooling and curing process which follows the hot pressing operation is the penalty for lack of accurate moisture control.

Optical, Physical, and Chemical Properties

From what has been written previously it is apparent that selected thickness, good resin impregnation characteristics, and resin and light-stable color and printed design, are the most necessary qualifications of the carrier sheet. Satisfactory bonding and good surface appearance are dependent upon the carrier sheet, the type of resin, the proper stage of resin condensation as evidenced by the plastic flow, the nature of the caul plates, and proper selection of moisture content and assembly technique.

When placed on plywood panels the increase in structural strength which may be credited to the overlay is not a factor of any appreciable importance. Some properties such as impact resistance may be reduced especially with the thinner, denser overlays. Only the heavier thicknesses of the class A overlays can be considered as contributing to the flexural strength of such assemblies.

When veneers are used, however, even the thinner overlays contribute to the structural integrity of the assembly. The increase in tensile strength across the grain is particularly marked. Splitting, even with an axe, becomes almost impossible.

In the current laboratory program on this subject the range of characteristics for those assemblies exhibiting the more attractive market possibilities are being evaluated and an attempt is being made to determine the optimum carrier sheet thickness and resin content. A wide list of characteristics is being scrutinized.

The primary bond of the overlay to the wood base is determined by dry shear tests taken both in the initial condition and following a soaking and drying cycle, or boiling test. The fabrication characteristics of the assembly are evalued as to the masking character of the overlay, its paintability, its gluing possibilities in fabrication, its bending radius, its machining and drawing or die impression characteristics, and its nail holding properties. Weatherability of the assemblies is being noted both by exterior exposure and weatherometer tests. The chemical resistance of the various assemblies under exposure to a range of the more common solvents and chemicals is being determined.

The comparative fire and heat resistance of such assemblies is of interest. The water absorption and moisture vapor transmission characteristics are critical considerations for certain types of use. The surface hardness may be measured by mechanical abrasion, scratching the surface, or by indentation. Certain structural values are being secured, including those for impact loads, for flexure as a simple beam with the veneer grain both parallel and perpendicular to the span, for shear perpendicular to the plane of the specimen, and for cleavage parallel to the grain.

The most desirable techniques for evaluating certain of these characteristics are yet to be determined.

Post-War Uses

We consider accurate information on the physical and chemical properties of such assemblies to be essential to any extended market survey of potential post-war uses. Various suggestions have been made as to the fields of usefulness open to such products.

In the housing field they may be used as door panels, as siding, and perhaps flooring and roofing for bath and shower stall walls, for built-in cabinets, and similar items. In furniture they may be used for furniture backs and panels, for drawer bottoms, and for screens. Fabrication specialties such as toys, small household racks, and similar articles appear to be an attractive potential.

For commercial display work, surfaced panels appear to be particularly attractive for cut-outs, window displays and backgrounds, and for roadside signs. Multiple use shipping cases and other retail containers may involve considerable footage. In industrial work, various installations requiring high mechanical abrasion resistance along with some resilience, and uses requiring mild chemical-resistant surfaces such as vats may prove the most important field. In some installations and uses the resistance of the plastic faces to termites and microorganisms may prove important.

The market possibilities for plastic overlays on plywood panels or veneers, fitting into an economic range of usefulness between the present plywood panel and the conventional plastic laminate, appear most attractive. Technical cooperation between the pulp and paper, resin, and plywood industries will be required to develop the full potentials of this new combination material.

A. V. Howland in North Carolina

Boston, Mass., March 19, 1945—Arthur V. Howland, vice-president, treasurer and assistant treasurer of Tileston & Hollingsworth Company, is passing a vacation in North Carolina, expecting to return by the end of March.

The Development of Weatherproof Solid Fiber Board*

By H. T. Barker[1]

Abstract

A brief survey of the development of weatherproof solid fiberboard is traced. Typical make ups of V boards are described and sizing specifications for their paper components are given. The two most extensively used weatherproof adhesives are discussed and their preparation briefly described. Several thoughts on post-war application of weatherproof solid fiberboards are suggested.

It became apparent early in the war effort that conventional shipping containers for export shipment would not be available in quantities to meet requirements and Government procurement agencies immediately asked the paperboard industry to supply solid fiber shipping containers satisfactory for this use.

It was obvious that the meager information on export requirements of solid fiber shipping containers, would not suffice to set up specifications and it was equally obvious that the industry was faced with the problem of producing paperboard of a grade far superior to conventional container board in resistance to weathering, water immersion, high humidities, and heat and cold.

The average quality fiberboard for domestic shipment, available early in 1942, had practically no resistance to water immersion for any extended period. Today there is being supplied V2 grade solid fiberboard with a dry burst of somewhat over 600 pounds, which exhibits practically no loss in bursting strength after 24 hours immersion in water, maintains most of its rigidity, and is capable of delivering goods in a satisfactory condition meeting the severe requirements of war conditions.

V Board Development

This development took place rapidly. The first specification the industry was asked to meet called for 0.100 solid fiberboard with a burst strength of 375 pounds, which would show less than 2 inches of splitting in the glue lines when immersed in water for 1 hour and which would show less than 50% in bursting strength loss and less than 50% water absorption when submerged in water for 2.5 hours. It was soon apparent that such a container was far from satisfactory. War Department complaints on conditions of shipments received overseas indicated that very great increases in requirements would be necessary, particularly in water resistance. During this period a wide variety of specifications were introduced by various procurement offices. Out of this muddle a general pattern of requirements began to take shape. These were gradually simplified and the present V box specifications were set up. These specifications call for three general classes of solid fiberboards which have been designated V1s, V2s, and V3s. The specifications for these boards follow:—

	V1s	V2s	V3s
Caliper, nominal, inch.....	0.100	0.090	0.090
Dry bursting strength, minimum, lb.	750	550	400
Immersion, 24 hours: Bursting strength, minimum, lb.	500	500	150
Splitting, maximum, inch...	0.25	0.25	0.25

These classifications provide for two boards, V1 and V2, having very high wet strength properties, one of which, V1, having a very high dry strength. The third class, V3, is a considerably weaker board, both in dry and wet strength.

It was found for some very drastic uses, that none of these boards provided the necessary protection and a type of box was designed, meeting either V1 or V2 specifications, to which was added a sleeve of the same material.

Gradually experience taught the actual use requirements of the various shipping containers. It was found, except for a small proportion of uses, that the V1 board provided over-packing and its use has gradually diminished. The V3 grade was found satisfactory for a large number of uses where a large amount of protection was unnecessary. The bulk of the volume is at present in the V2s grade. This grade accounts for approximately two-thirds of all solid V boxes made, V3s for 27%, and the V1s for 6%.

In order to meet these requirements, it was necessary to make radical changes in the paper machine products and in the adhesives used for laminating. The water absorption of papers was greatly reduced and highly water resistant adhesives were developed. The papermaker early realized that material changes in sizing methods would be necessary to provide the strength and water resistance required.

Water Resistance

It seemed most logical that the solutions to the problems should be worked out in such a manner as to use the conventional papermaking and laminating equipment available with a minimum of change in operation. It was from this point of view that most attacks upon the problem were launched.

Sizing

Several methods of approach to the problem were apparent. It was found possible to produce weatherproof board meeting these requirements using rosin and rosin wax sizes in the conventional manner simply by increasing the amount of size and alum to give the required sizing, usually at the expense of a substantial proportion of paper machine production because of increased operating difficulties. These boards, generally, had high water absorptions resulting in high wet burst loss and poor wet rigidity. It was necessary to produce a board with a very high burst to meet the wet bursting strength requirements. Such a method of producing weatherproof board was wasteful of pulp and board capacity, both highly undesirable in a period of pulp shortage and very high volume requirements.

A second method of approach was to develop new sizing techniques to produce very hard sized boards with high wet strengths. Both asphalt emulsions and

* Presented by title at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 19-22, 1945.

[1] Member TAPPI; Chief Chemist, East Walpole Plant, Bird & Son, Inc., E. Walpole, Mass.

wet strength resins have been used with success. The papers were far superior to rosin sized papers in that production problems were less serious and much higher wet strength boards could be produced with attendant pulp and production capacity savings. The principal disadvantage to these boards was rather high water absorption. While far superior to conventional sized boards, in this respect, water pick-up on submersion was great enough to materially lower rigidity. However, such boards easily met all specification requirements and a substantial proportion of the weatherproof solid fiberboard produced has been made by this method.

Water Barriers

It became apparent as the weatherproof box developed that the ideal box would be one with high wet strength to which had been added a water barrier which would keep water absorption low enough to cause little loss in rigidity. Asphalt duplexed liners provided the cheapest and simplest solution and the weatherproof box with one or two asphalt barriers was born. At the present time, the major proportion of the V1 and V2 solid fiber boxes are made in this way.

It immediately became apparent that board, lined with asphalt duplexed papers which provided two waterproof asphalt barriers close to the surface of the board, was so highly water resistant that filler sheets need not be sized nearly as hard as without the asphalt barriers. This made it possible to use papers closer in physical properties to conventional paperboards resulting in material savings in pulp requirements and production capacities.

A typical V2s grade board with two asphalt barriers is made up as follows. A four-ply board is laminated using a water resistant adhesive. The plies consist of two asphalt duplexed liners and two hard sized fillers. V1s boards are of similar construction but are usually five-ply, two asphalt duplexed liners, and three fillers, the extra ply being necessary to get the required dry burst. V3s boards are usually made up of four-plies of hard sized papers with no asphalt barriers. Actual compositions will vary widely according to the raw materials available in the individual mill.

Sizing Tests

A number of sizing tests have been devised to measure quality of weatherproof papers. Two of the more commonly used are the submersion and Cobb tests. The submersion consists in immersing a 6- by 6-inch sample of paper in water at 75°F. for 10 minutes. The submersion number is the centigrams of water picked up. The Cobb test is specified in TAPPI Standard T 441 m-42. Time of exposure is 5 minutes and test is reported in grams per square meter.

V1s and V2s boards made with asphalt duplexed liners will meet specifications if the papers used have a Cobb of 45 grams per square meter and a submersion number of 400. V3s boards without asphalt duplexed liners can be laminated successfully from papers with a Cobb of not more than 65 grams per square meter and a submersion number of not over 450.

Some special treatments of fiber board such as coating or saturating of the laminated board with hot-melts or waxes have been worked out. So far as known by the author only one of these treatments is in commercial use. This consists in passing the filled and sealed container through a wax bath thus completely waterproofing the container. It is interesting to note that German supply containers, waterproofed by this method, have been returned from the front.

Adhesives

Starch-Resin

At the same time that the papermaker was learning how to meet the new sizing requirements, the laminator was hunting for adhesives which could be used on conventional laminating equipment and which would provide highly water resistant glue lines. The first satisfactory adhesive developed and the one which is used to the greatest extent at the present time is the starch-urea-formaldehyde resin adhesive. The starch manufacturer, the resin supplier, and the paperboard manufacturer all contributed to the development of this adhesive. Many satisfactory modifications were worked out, but in general the adhesive consists of an acid starch cooked to 195°F. to which is added, after cooling, from 5 to 20% urea-formaldehyde resin. It is possible to extend this adhesive and to vary its viscosity by the use of clay or asphalt emulsion. Under proper conditions the resin can be cooked with the starch.

These adhesives are somewhat tricky to use. Close technical supervision and careful control should be provided. The mechanism of the waterproofing of starch by urea resin is not definitely known but it occurs under the same conditions as the cure of the resin and may involve a reaction between the starch and the resin. The starch base used varies from medium boiling starches to dextrines and mixtures of the two. The amount of resin required varies with the type of starch and the degree of water resistance required, and, in general, increases with the degree of conversion of the starch. The resin cures under acid conditions, hence, alkaline starches cannot be used. Because of the absence of heat on most solid fiber pasters, accelerators, usually ammonium chloride, are added to the resin to hasten its cure. Close pH control is necessary to insure curing of the resin which is necessary to develop the waterproofness of the glue line and also to insure against jelling of the resin while in use. In spite of its limitations it is entirely satisfactory as a weatherproof adhesive and at the present time is being used by a major part of the weatherproof board manufacturers.

Polyvinyl Alcohol

Polyvinyl alcohol base adhesives have been introduced for laminating weatherproof board. These adhesives have found considerable favor and are preferred by many mills because of their ease of operation. The adhesive is considerably more expensive than starch-resin. Its economical use depends on its extention with cheaper materials. Both asphalt emulsions and starch have been used successfully for this purpose. This adhesive requires less close control than the starch-resin adhesive. The solid adhesive is dissolved in water with heat and agitation, cooled, and asphalt emulsion added. The blended adhesive is then pumped to the paster with no further treatment or control.

The type of adhesive used, unless it forms a water barrier such as hot asphalt, will have little effect on the water resistance or on the wet strength of the board. These properties depend almost entirely on the sizing characteristics of the papers combined. The adhesive's primary purpose is to prevent splitting in the glue line when submerged in water. Given well-sized papers, these adhesives will produce a laminated board

which will not split. The water resistance of the finished case will be no better than the papers used in its production.

The development of V boards has caused the development of highly water resistant adhesives which can be used on conventional pasters with no changes in operation or reduction in operating speeds. Adhesives are at present available which are waterproof far above the present V board requirements. Their cost is not far above old conventional adhesives. These materials should stimulate interest in thinking for the future, not only in the adhesive field, but in allied fields also.

V Board Market

The V box has been developed to provide a container which would deliver the goods under the very hazardous conditions of war. Reports from the fronts indicate that the Victory box has been a definite contribution to the war effort and that it is successfully serving in the capacity for which it was designed. What properties has it which should be of interest to shipping container thinking for after this war?

Its primary property is water resistance. In the development of this water resistance, the way has been shown to the means of much greater water resistances if use requirements will justify them, e.g., it is entirely possible to produce a solid fiber container which will stand 7 days submersion in water with practically no loss in physical strength. With the advent of moisture- and vaporproof tapes this container can be made to provide not only high protection under adverse shipping conditions but also a high degree of moisture vapor resistance.

This is truly a global war and the American soldier and his variety of supplies will leave an indelible impression on peoples with whom he comes in contact, all over the world. Surely, wherever there is purchasing power, a demand for some of these goods will arise. The weatherproof box in one of its forms should play a part in this field.

The domestic market also offers possibilities. The quick frozen food development, promised after the war, suggests many requirements which the water and moisture resistance of the V box should fill. Air shipments of luxuries and perishables is a field with similar requirements. Containers for fresh fruits and vegetables deserve consideration. The know-how gained in producing a very high degree of sizing may find application in the building board field. There is being built up a tremendous demand for housing during this war period. New and better house construction will require a variety of building and structural papers and boards, some of which may be developed from the knowledge gained in the V box development.

The ultimate place of the V type board will depend on the ingenuity of the manufacturer to produce a material competitive with existing materials, such as wood or plywood or with new materials being developed in other fields.

The exploitation of any new development is a challenge to the vision of those connected with it. The author believes that the paperboard industry will not allow one of the most significant developments in its history to die for want of imagination and that the technical people connected with it will be equal to the challenge presented to them.

Report of Standards Committee For 1944*

By Roger C. Griffin[1]

Considering the difficulties of carrying on committee work in war time, the Standards Committee takes considerable satisfaction in presenting this report of activity and progress in TAPPI standards and methods during 1944.

New and Revised Standards

During the year seven new tentative standards were approved and submitted to the secretary for publication:

- E 203 p-44 Paper Machine Drying Rate *(1)*
- E 600 s-44 Specifications for Chemical Composition of Process Water for Fine Paper Manufacture *(2)*
- T 464 m-44 Water Vapor Permeability of Sheet Materials at High Temperature and Humidity *(3)*
- T 466 m-44 Degree of Curl and Sizing of Paper *(4)*
- T 467 m-44 Paraffin Wax Absorptiveness of Paper
- T 802 m-44 Drop Test for Fiberboard Shipping Containers *(14)*
- T 803 m-44 Puncture Resistance of Containerboard *(14)*

All but one of these have been printed for the looseleaf manual and they all have been published in the *Paper Trade Journal* as indicated.

Four new suggested methods were approved and published:

- T 14 sm-44 Dirt in Wood Chips *(5)*
- T 465 sm-44 Creasing of Paper for Water Vapor Permeability Tests *(6)*
- T 800 sm-44 Drum Test for Fiberboard Shipping Containers *(14)*
- T 801 sm-44 Impact Test of Fiberboard Shipping Containers (Conbur Test) *(14)*

Published in Loose Leaf Form

These have all been published in looseleaf form. One other method was returned to the originating committee for further study and action. Major revisions of three official standards were approved and printed in looseleaf form:

- T 402 m-44 Conditioning of Paper and Paperboard for Testing
- T 403 m-44 Bursting Strength of Paper *(7)*
- T 433 m-44 Water Resistance of Paper (Dry-Indicator Method) *(8)*

Revisions of two tentative standards were approved and have been printed for the manual:

- T 456 m-44 Wet Tensile Breaking Strength of Paper and Paperboard *(9)*
- T 620 m-44 Analysis of Industrial Process Water

A revision of the suggested method for Flammability of Treated Paper and Paperboard was approved and has been published *(10)* as T 461 sm-44.

Two tentative standards were advanced to official standards by vote of the association and they have been published for the manual:

- T 429 m-44 Alpha-, Beta-, and Gamma-Cellulose in Paper
- T 450 m-44 Pentosans in Paper

It was decided not to advance the following tentative standards to official on account of criticisms and comments received:

- T 437 m-43 Dirt in Paper
- T 446 m-42 Creasing Quality of Paper
- T 454 m-42 Turpentine Test for Grease Resistance of Paper
- T 457 m-42 Stretch of Paper and Paperboard
- T 459 m-43 Wax Test for Surface Strength of Paper
- T 460 m-43 Air Resistance of Paper

* Presented by title at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 19-22, 1945.

[1] Member TAPPI; Chairman, TAPPI Standards Committee; Vice-President, Arthur D. Little, Inc., Cambridge, Mass.

Two of the foregoing methods, however, were approved and published in corrected form:

T 454 m-44 Turpentine Test for Grease Resistance of Paper
T 460 m-44 Air Resistance of Paper *(11)*

In addition to the above, errors and desirable changes were discovered in three methods which were considered of sufficient importance to have correction notices published in the *Paper Trade Journal:*

T 202 m-42 Chlorine Consumption of Pulp *(12)*
T 407 m-42 Amount of Coating on Mineral-Coated Papers *(13)*
T 447 m-42 Moisture Expansivity of Paper

The first two notices have been published as indicated.

The committee has had before it for action during the past year 28 methods and standards as compared with 31 during the year 1943.

Contents of Book of Standards

In December there were mailed to the TAPPI membership in looseleaf form 9 new tentative standards, 4 new suggested methods, 5 tentative standards advanced to official, 1 reapproved official standard, 35 corrected methods, and 8 revised methods. The numerical and alphabetical indexes of the manual were brought up-to-date and the latter was issued in a new format which it is hoped will be found more convenient.

The material now in the looseleaf book comprises the following:

	Tentative	Official	Total
Standard Recommended Practices.....	2	10	12
Standard Specifications	1	1	2
Standard Testing Methods	33	88	121
Suggested Methods	..	..	19
			154

This is an increase of 15 over last year's report.

For those who may be statistically minded there is presented in Table I a chronological summary of TAPPI standards and suggested methods. The figures in this table cover the material in the looseleaf book and do not take into account work in process. During the past year we have concentrated on unifying the language and format of methods and standards previously published and corrected typographical and other errors. This resulted in the publication of 35 "corrected" standards in 1944. There are about twenty more which need attention during the coming year to complete the job.

TABLE I.—TAPPI STANDARDS AND METHODS

Year	New TS	New OS(a)	New SM	TS Advanced to OS	SM Advanced to TS	Revised Standards(b)	Corrected Standards(b)
1923.....	1	..	..	..	..	..	..
1924.....	..	..	..	1	..	..	..
1926.....	2	21	..	..	..	..	..
1927.....	..	1	..	1	..	..	..
1928.....	1	..	..	1	..	1	1
1930.....	6	..	..	1	..	3	..
1931.....	7	..	..	3	..	..	..
1932.....	27	..	..	4	..	2	..
1933(a)...	8	..	..	24	..	4	1
1934.....	3	..	..	11	..	5	9
1935.....	4	..	..	5	..	8	19
1936.....	4	..	2	2	..	5	23
1937.....	4	..	2	4	1	..	6
1938.....	3	..	..	1	..	3	..
1939.....	1	..	2	2	1	5	..
1940.....	5	..	3	4	..	4	17
1941.....	2	..	3	5	..	6	13
1942.....	13	..	1	5	1	11	7
1943.....	8	..	4	3	..	11	2
1944.....	6	..	4	5	..	7	36
Total...	105	22	21	82	3	75	134

TS = Tentative Standards
OS = Official Standards
SM = Suggested Methods

(a) There appears to be no record of when these 22 official standards were first issued as tentative standards.
(b) Including suggested methods.
(c) Standards Committee organized.

Routine Control Methods

The TAPPI standard testing methods are intended to be referee methods of high precision. There have been some inquiries for more rapid methods for routine testing and control where speed is more important than high accuracy. The committees in the testing division either are not set up to handle the preparation of such methods or do not consider them a part of their functions. Some years ago the Executive Committee authorized the preparation of a new class of testing methods to be known as Suggested Methods. These are methods recommended by various committees as the most suitable to date for the particular purpose but not considered suitable for adoption as TAPPI standards. The time now seems propitious for the Executive Committee to consider ways and means for standardizing and publishing a new series of methods which might be designated as Control Methods. Such methods might conceivably cover a wide range of subjects and some of them fall outside the scope of the usual physical and chemical tests. As an example, there was a recent inquiry for a control method for determining the amount of wet crepe in paper. The preparation of such methods would probably require the cooperation of various committees in the testing division with committees in other divisions, such as the manufacturing divisions, and might even involve the formation of new committees or subcommittees.

Work of Committees

The new and revised standards and methods accepted by the Standards Committee during the year have all come from five committees. More than half of these were presented by the Paper Testing Committee, namely, 3 new tentative standards, 1 new suggested method, 5 revised standards and 1 corrected standard. This committee and its chairman, B. W. Scribner, are to be highly commended for the successful continuance of standardization work under present conditions.

The comparatively young Container Testing Committee, under the chairmanship of Arno Nickerson, also deserves the appreciation of TAPPI. It not only completed 2 tentative standards and 2 suggested methods in 1944, but has a heavy schedule of work under way for the coming year. This work will be directed by the new chairman, Don L. Quinn, whose long experience in the field should aid the committee in formulating the quintessence of container testing methods.

Once again we close our annual report with an expression of appreciation to Major James d'A. Clark, general chairman of the Testing Division, for his continued cooperation and generous contribution of his time outside his duties in the Army Subsistence Research Laboratory. Principally through his efforts the standardization of test methods is being coordinated with the work of various groups in the armed forces, thus giving TAPPI more direct participation in the long march to victory.

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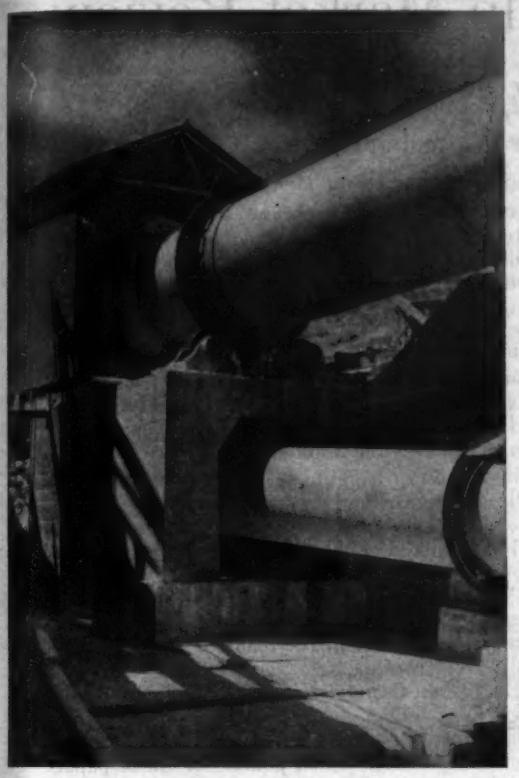

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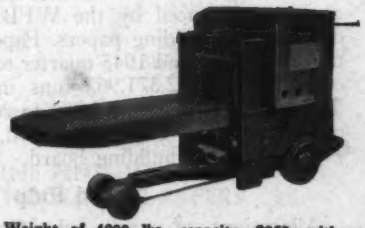
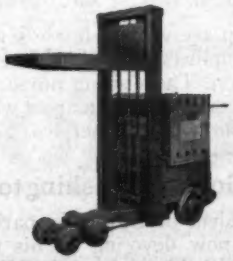


Weight of 4000 lbs. capacity—2850, without battery. Truck turns from a 5' 4" aisle into an intersecting aisle of 4'.



Platform 24" wide, 53" long and 11" high, low position. Capacity 2000, 3000 and 4000 pounds.

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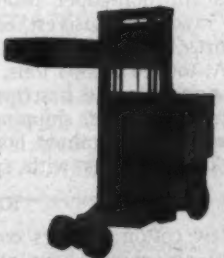

Platform 24" wide, 42" long and 9" high, low position. Weight of 4000 lb. capacity—2800 without battery.

New York Paper and Pulp Market Review

Kraft, Groundwood Printing and Paper Board Supply Tightens For Civilians—Wood Pulp Allocations For Second Quarter Paper Output Lower—Rags Are Active—Scout Waste Paper Drive On.

Office of the PAPER TRADE JOURNAL,
Wednesday, March 21, 1945.

Paper for civilian consumption continues tight with a more critically felt shortage in kraft and groundwood papers and in paper board. Current reports received from many manufacturers' representatives, jobbers, and general paper merchants reflect anxiety at the extremely short supply situation. Conflicting opinion and some confusion is publicly expressed in reference to the present allocation of goods for the home front. This evidently points to a lack of balance between military, lend-lease and foreign demands and the estimate of essential quantities required to adequately maintain the civilian economy. It is to be hoped that the proposed survey of the situation may suggest means to effect a larger supply of paper and many other necessary goods for American consumption.

The index of general business activity for the week ended March 10 declined to 141.4, from 142.3 for the previous week, compared with 143.2 for the corresponding week in 1944. The index of paper board production was 152.0, compared with 150.8 for the previous week and with 144.2 for the corresponding week in 1944.

Paper production for the week ended March 10 was estimated at 87.7%, compared with 88.5% for 1944, with 89.8% for 1943, with 101.9% for 1942, and with 89.9% for the corresponding week in 1941.

Paper board production for the week ended March 10 was 93.0%, compared with 95.0% for 1944, with 93.0% for 1943, with 100.0% for 1942, and with 82.0% for the corresponding week in 1941.

Authorized minimum quantities of paper for the second 1945 quarter total 1,951,320 tons, compared with 2,030,000 tons in the first quarter. The only increases announced by the WPB are in special industrial and building papers. Paper board authorization for the second 1945 quarter totals 2,419,917 tons, compared with 2,371,963 tons in the first quarter. The tentative figures, subject to revision, indicate increases only in container board, folding boxboard (waste) and in building board.

Wood Pulp

Allocations of wood pulp for the second 1945 quarter, announced by WPB, is estimated for 30,626 less tons of paper than in the first quarter. Allocations for non-paper productions total 243,000 tons for rayon, explosives, cellophane, plastics and for export. Total pulp exports, including the Army and FEA, totaled 60,863 tons, compared with 61,281 tons authorized in the first quarter. Certain military, industrial, business, shipping sack, toilet and wrapping papers and container board, were given preferred production status with specified tonnages.

Rags

New cotton cuttings continue active with mill demand absorbing about all available supplies in the papermaking grades. Prices are strong at ceiling levels.

Old cotton rags are in heavy demand. Supplies are quite widely reported well under current demand. Felt mills are buying the roofing grades in relative large volume this week. Prices are firm at ceiling levels.

Old Rope and Bagging

Demand for Manila rope continues to absorb all available supplies. No important change has been reported in the waste fiber market this week. Prices are firm at ceilings on Manila.

Trading in scrap bagging is reported narrow and in small volume. Although market reports indicate dealer expectations of improved activity soon, no change has occurred at this date. Prices are nominal.

Old Waste Paper

Mill need for a steady flow of paper stock continues urgent and demand is reported in excess of supplies. Prices are strong at ceilings.

The Boy Scout-General Eisenhower Waste Paper Campaign now under way will continue through April. The quota is 150,000 tons of paper. Every Boy Scout who collects 1,000 pounds of waste paper will receive a special bronze campaign medal, suspended from a red and white ribbon.

Twine

Demand is good for twine at this date. No important change from prevailing quotations has been reported this week. Prices are relatively firm on most grades.

Sanitary Products Insures Workers

A group program of life insurance, and sickness and accident with hospital expense and surgical operation benefits for its employees has been adopted by the Sanitary Products Corporation of America, manufacturer of paper cups, spoons and like products, Plainfield, N. J. Announcement of the plan was made by John V. Dunne, president of the corporation.

The plan is being underwritten by the Metropolitan Life Insurance Company on a basis whereby the employer bears the entire cost. Employees receive $1,000 life insurance, non-occupational disability benefits of $14 a week in case of illness or injury, $5 a day when hospitalized and up to $150 surgical operation benefits.

Also included in the plan are visiting nurse service and the distribution of pamphlets on health conservation and accident prevention. The visiting nurse care is available to insured workers residing in areas where the insurance company maintains this service.

James Donaldson Goes to Washington

James Donaldson, President of Stora Kopparberg Company, New York, is now devoting all his time to the work of the Paperboard Division in Washington, D. C.

WHEN "TEDDY" CHARGED . . . UP SAN JUAN HILL

Almost half a century has gone by since Colonel Roosevelt led his boys in that famous charge . . . and helped win the war with Spain.

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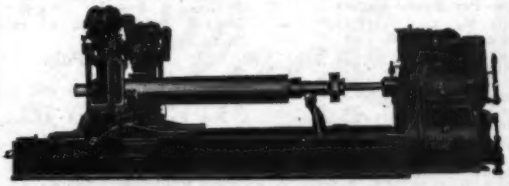

Instant adjustment is made for maximum cutting requirements. A half turn of a knurled knob gives continuous wheel pressure on the roll.

This precision grinding saves time, reduces wear on wheels and eliminates the practice of too heavy or too light cutting.

Regardless of the type of paper to be made, the Lobdell Grinder will do a better, faster job. It occupies, minimum floor space and lowers costs. It will pay you to investigate the merits of this Grinder . . . more than a century of experience contributes to its efficient performance.

We are interested in your post war needs . . . and urge you to call upon us for information and consultation. The Lobdell line of machinery for the paper making and allied industries includes Calender Stacks (the choice of leading mills) . . . Micrometer Roll Calipers . . . Puraloy Chilled Calender Rolls, now available in limited quantities (due to war time regulations).

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Charleston, South Carolina

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, March 21, 1945.

BLANC FIXE—The market for blanc fixe continues without change, for the week. Current demand is reported fair. The pulp is currently quoted at $40 per ton, in barrels, at works; the powder is currently quoted at $60 per ton.

BLEACHING POWDER — Current demand is reported active. Supply situation reported satisfactory. Bleaching powder is currently quoted at from $2.50 to $3.10 per 100 pounds. All prices in car lots, in drums, f.o.b. works.

CASEIN—OPA maximum prices on processed acid-precipitated casein are as follows: 10,000 pounds or more, 24 cents per pound; 2,000 pounds, 24¼ cents per pound; less than 2,000 pounds, 24¾ cents per pound, f.o.b. shipping point.

CAUSTIC SODA—Supply situation continues tight, with production high and very heavy all-over demand. Deliveries delayed by traffic congestion. Solid caustic soda is currently quoted at $2.30 per 100 pounds. The flake and ground are currently quoted at $2.70 per 100 pounds. All prices in car lots, in drums, f.o.b. works.

CHINA CLAY—Demand for some grades of china clay is reported fair this week. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay is quoted at from $12 to $22 per ton, at mines. Imported china clay is currently quoted at from $13 to $25 per long ton, ship side.

CHLORINE — Production reported at high rate. Demand for all uses heavy. Deliveries delayed by transportation difficulties. Prices remain unchanged. Chlorine is quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b. works.

ROSIN—Prices are quoted unchanged at OPA ceiling prices: "G" gum rosin at $5.79 per 100 pounds, in barrels, Savannah. "FF" wood rosin is currently quoted at $5.75 per 100 pounds in barrels. New York. Seventy per cent gum rosin is currently offered at $6.06 per 100 pounds, f.o.b. works. Conservation Order M-387 of February 28, limits rosin to 70% of 1944 quota for paper.

SALT CAKE—Demand reported moderate. Quotations on salt cake continue to remain unchanged. Domestic salt cake is currently quoted at $16 per ton.

SODA ASH — Market requirements for soda ash continue heavy. Production at capacity. Market tight. Deliveries behind schedule. Prices continue unchanged. Prices on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Market supply of corn reported a little larger this week. Corn prices are steady. Starch quotations continue unchanged. Pearl is currently quoted at $3.72 per 100 pounds. The powdered grade is currently quoted at $3.83 per 100 pounds. All prices f.o.b. Chicago.

SULPHATE OF ALUMINA—Supply situation is favorable. Quotations are unchanged. Prices on the commercial grades are quoted at from $1.15 to $1.25 per 100 pounds. The iron free is currently quoted at $1.85 per 100 pounds. All prices in car lots, in bags, f.o.b. works.

SULPHUR—Demand is reported active for sulphur. Quotations on all grades continue unchanged. Annual contracts are currently quoted at $16 per long ton, f.o.b. mines. The current contract prices at Gulf Ports remains unchanged at $17.50 per long ton.

TALC—The market for domestic talc is reported fair this week. Quotations unchanged. Domestic grades are quoted at from $16 to $21 per ton, at mines.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

Standard News, per ton—		
Roll, contract	*$58.00	@ —
Sheets	66.00	" —
*OPA Maximum Price.		
Kraft—per cwt.—Carload Quantities Zone A, f.o.b. Mill		
Superstandard Wrapping	*$5.25	@ —
No. 1 Wrapping	*5.00	" —
Standard Wrapping	*4.75	" —
Standard Bag	*4.375	" —
*OPA Manufacturers' Prices.		
Tissues—Per Ream—Carlots		
White No. 1	1.12½	" —
White No. 1 M. G.	1.10	" —
White No. 1½	1.00	" —
White No. 2	.90	" —
Anti-Tarnish M.F.	1.20	" —
Colored	—	" —
Kraft	.95	" —
Manila	.90	" —
Toilet—1 M. Sheets—Per Case		
Unbleached	4.25	" —
Bleached	5.70	" —
Unbl. Toilet, 1 M.	4.16	" —
Bleached Toilet	5.70	" —
Paper Towels, Per Case—		
Unbleached, Jr.	2.20	" —
Bleached, Jr.	3.20	" —
Manila—per cwt.—C. l. f. a.		
No. 1 Jute	11.25	@ —
No. 1 Manila Wrapping, 35 lb.	6.00	" 6.25
No. 2 Manila Wrapping, 35 lb.	5.75	" 6.00
Boards, per ton—		
News	*50.00	@ —
Chip	*50.00	" —
Sgl. Mla. Lt. Chip	*62.00	" —
White Pat. Coated	*75.00	" —
Kraft Liners 50 lb.	*63.00	" —
Binders Boards	84.00	" 116.00

*OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5.; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1	$39.10@$46.00	$40.25@$47.25
100% Rag	32.20 " 37.75	33.35 " 39.25
85% Rag	.... "	29.90 " 35.00
75% Rag	23.00 " 27.00	24.15 " 28.25
65% Rag	.... "	22.80 " 27.75
50% Rag	18.70 " 22.75	19.90 " 24.25
25% Rag	16.40 " 20.00	17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$10.55@$12.75	$11.70@$14.25
No. 2	9.65 " 11.75	10.80 " 13.25
No. 3	9.20 " 11.25	10.35 " 12.50
No. 4	8.90 " 10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper. Delivered in Zone 1:

No. 1 Glossy Coated	$13.65@$13.65
No. 2 Glossy Coated	12.40 " 14.00
No. 3 Glossy Coated	11.60 " 13.25
No. 4 Glossy Coated	11.15 " 12.75
No. 1 Antique (watermarked)	10.25 " 11.75
No. 2 Offset	9.60 " 11.00
A Grade E. F.	9.35 " 10.75
A Grade S. & S. C.	9.60 " 11.00
B Grade E. F.	8.85 " 10.25
B Grade S. C.	9.10 " 10.50
C Grade E. F.	8.55 " 9.75
C Grade S. C.	8.80 " 10.00
D Grade E. F.	8.25 " 9.25
D Grade S. & S. C.	8.50 " 9.75
Ivory & India at $.50 cwt. extra.	

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers Prices, Less Freight Not Exceeding OPA Allowances.

Bl. Softwood Sulphite	$86.00
Unbl. Softwood Sulphite	74.00
Bl. Hardwood Sulphite	83.50
Unbl. Hardwood Sulphite	71.50
Bl. Mitscherlich	81.00
Unbl. Mitscherlich	72.00 @ 82.00
N. Bleached Sulphate	86.00
S. Bleached Sulphate	79.00
N. Semi-Bleached Sulphate	82.00
S. Semi Bleached Sulphate	75.00
N. Unbl. Sulphate	73.00
S. Unbl. Sulphate	63.50
Bl. Soda	76.00
Unbl. Soda	72.00
Groundwood	50.00

Transportation Allowances

Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$13.50
Lake Central	13.50
Southern	16.00
West Coast (in area)	10.50
West Coast (out area)	16.50

	50%-80% Air Dry Weight
Northeast	11.50
Lake Central	11.50
Southern	14.00
West Coast (in area)	9.50
West Coast (out area)	15.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$8.50
Lake Central	8.50
Southern	11.00
West Coast (in area)	7.50
West Coast (out area)	13.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	6.50	@ 7.25*
Silesias No. 1	—	" 5.75*
New Unbleached	6.75	" 7.50*
Blue Overall	—	" 5.50*
Fancy	—	" 3.50*
Washables	—	" 3.00*
Bleached Khaki Cuttings	—	" 4.25*
Unbleached Khaki Cuttings	—	" 3.50*

*OPA Maximum Prices.

Special FOR PAPER

PARIS 2 Black

• A COLUMBIAN COLLOID •

The exceptionally high tinting strength of this special paper black permits minimum pigmentation to secure a desired shade.

OTHER IMPORTANT CHARACTERISTICS:

Free from oiliness
Optimum particle size
Ease of dispersion
Uniformity

•

Use PARIS 2 BLACK
for
JET BLACK PAPERS
for
TINTING GRAY STOCKS

We invite technical inquiry

•

COLUMBIAN CARBON CO. • BINNEY & SMITH CO.
MANUFACTURER DISTRIBUTOR

41 EAST 42nd STREET • NEW YORK 17, N. Y.

Bristle arrangement on center brush above is used by textile mills. The metal core is the same type as is used in Jenkins full line of brushes for the paper industry.

Compare

These brushes were photographed after they had given identical lengths of service.

Compare the bristles of the center brush above, wound on a metal core, with the bristles on wooden cores in the other two brushes.

Note that the patented Jenkins metal core brush is as good as ever, its bristles still clean and unmatted; its metal core unharmed by use. When, at long last, new bristles are needed, a new set can be wound on the core to make the brush as good as new.

Wooden cores, and the best of ordinary bristles are no match for

JENKINS METAL CORE BRUSHES

The Heart of the Brush Controls Its Efficiency
THE COLD DRAWN STEEL OR ALUMINUM HEART OF JENKINS CYLINDER BRUSHES ASSURES STRENGTH, RIGIDITY, BALANCE AND PERFECT ALIGNMENT

Send for this Free Booklet. Full of facts about Jenkins Metal Core Brushes in various applications.

M. W. JENKINS' SONS, INC.
CEDAR GROVE, ESSEX COUNTY, NEW JERSEY

Established 1877

Old Rags

White, No. 1—			
Repacked	*3.85	"	—
Miscellaneous	*3.30	"	—
White, No. 2—			
Repacked	*2.90	"	—
Miscellaneous	*2.65	"	—
Third and Blues—			
Repacked	*2.40	"	—
Miscellaneous	*1.80	"	—
Bedding Rags—			
No. 1	*1.35	"	—
No. 2	*1.45	"	—
No. 3 (bagging)	*1.35	"	—
No. 4	*1.35	"	—
No. 5A	*1.35	"	—
Old Manila Rope	5.75	"	—

*OPA Maximum Prices.

Foreign Rags

All Prices nominal

New Rags

New Dark Cuttings	2.25	●	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
New Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—
No. 4 White Linens	2.25	"	3.25
No. 1 White Cotton	4.25	"	4.75
No. 2 White Cotton	3.25	"	3.75
No. 3 White Cotton	2.50	"	3.00
No. 4 White Cotton	1.90	"	2.20
Extra Light Prints	2.00	"	2.40
Ord. Light Prints	1.75	"	2.15
Med. Light Prints	1.35	"	1.95
Dutch Blue Cottons	2.25	"	2.50
French Blue Linens	3.00	"	—
Checks and Blues	2.00	"	—
Linsey Garments	1.90	"	2.00
Dark Cottons	1.50	"	1.60
Old Shopperies	1.30	"	1.45
New Shopperies	1.45	"	1.50
French Blues	2.25	"	2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	4.25	●	4.35
Wool Tares, light	4.25	"	4.50
Wool Tares heavy	4.50	"	5.00
Bright Bagging	4.50	"	4.85
Manila Rope—			
Foreign	—	"	—
Domestic	*5.75	"	—
Jute Threads	5.50	"	—
No. 1 Sisal Strings	*4.00	"	—
Mixed Strings	2.00	"	—

*OPA Maximum Price

Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	3.37½	●	—
No. 1 Hard White Envelope Cuts	3.12½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
Mixed Groundwood Colored Shavings	.90	"	—
Overissue Magazines	1.67½	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
Mixed Books	1.10	"	—
No. 1 White Ledger	2.30	"	—
No. 2 Mixed Ledger, colored	2.00	"	—
New Manila Envelope Cuttings, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manillas	1.95	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	"	—
New 100% Kraft Corrugated Cuttings	2.25	"	—
No. 1 Assorted Old Kraft	1.75	"	—
New Jute Corrugated Cuttings	.90	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Box Board Cuttings	.72½	"	—
White Blank News	1.65	"	—
Overissue News	1.10	"	—
No. 1 News	1.00	"	—
No. 1 Mixed Paper	.95	"	—
Old Corrugated Containers	.82½	"	—
Mill Wrappers	1.10	"	—

Twines

All Prices Nominal

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	●	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.24	"	—
Unpolished—			
Box	.17½	"	—
Paper Makers	.17	"	—
Tube Rope	.15	"	—
Wall Paper	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope	.19	"	—
Cotton	.23	"	—

(Hard Fiber)

Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila		"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill.)

Shirt Cuttings—	
New White No. 1	.07¼
New White No. 2	.05¾
Light Silesias	.05¾
Black Silesias, soft	.03¾
New Unbleached	.07¼
Washable Prints	.04¼
Washable No. 1	.03
Blue Overall	.05½
Cottons—According to grades—	
Washable shredding	.01¾
Fancy Percales	.04¾
New Black Soft	.03¼
Khaki Cuttings—	
Unbleachable Cotton Cuttings	.03½
Bleachable Cotton Cuttings	.04¼
Men's Corduroy	.03½
Ladies' Corduroy	.03
Cottonades	.03¼

Domestic Rags (Old)

White No. 1—Repacked	3.80	"	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
White No. 2—Repacked	2.90	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—			
(Export)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	"	3.50
No. 1 Clean bright—			
Sisal Strings			.04
No. 2 Clean bright—			
Sisal Strings			.03
Sisal Jute	.02½	"	.02¾
Scrap—			
No. 1	1.25	"	1.50
No. 2	1.75	"	1.80
Wool Tares, heavy	4.00	"	4.75
Shavings, unruled	2.87½	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
Mixed Groundwood Colored Shavings	.90	"	—
Overissue Magazines	1.67½	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
Mixed Books	1.10	"	—
No. 1 White Ledger	2.30	"	—
No. 2 Mixed Ledger, colored	2.00	"	—
New Manila Envelope Cuttings, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manillas	1.95	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	"	—
New 100% Kraft Corrugated Cuttings	2.25	"	—
No. 1 Assorted Old Kraft	1.75	"	—
New Jute Corrugated Cuttings	.90	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Box Board Cuttings	.72½	"	—
White Blank News	1.65	"	—
Overissue News	1.10	"	—
No. 1 News	1.00	"	—
No. 1 Mixed Paper	.95	"	—
Old Corrugated Containers	.82½	"	—
Mill Wrappers	1.10	"	—

Twines

All Prices Nominal

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	●	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.24	"	—
Unpolished—			
Box	.17½	"	—
Paper Makers	.17	"	—
Tube Rope	.15	"	—
Wall Paper	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope	.19	"	—
Cotton	.23	"	—

(Hard Fiber)

Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila		"	—
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila)

OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
Soft White Shavings, one cut	2.50	"	—
White Blank News	1.65	"	—
Soft White Shavings			

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices, Baled

No. 1 Hard White Shavings, unruled	2.87½	●	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	2.25	"	—
Ground Wood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Overissue News	1.10	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	—	●	2.50
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	*4.25	"	—
Mixed Rope	—	"	1.55
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	5.25	"	—
Jute Car Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	—	"	2.75
South American	—	"	3.00

Wool Tares—

Foreign	(nominal)		
Domestic	4.25	"	—
Aust. Wool Pouches	—	"	3.80
New Zealand Wool Pouches	—	"	3.30
New Burlap Cuttings	4.75	"	5.00
Heavy Baling Bagging	4.00	"	4.25
Paper Mill Bagging	2.50	"	3.00
No. 2 Roofing Bagging	1.35	"	—

*OPA Maximum Price.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	●	.04¾
Fancy Percales	.04¼	"	.04
New White No 1	.06¼	"	.07
New Light Flannelettes	.05¾	"	.06
Canton Flannels, Bleached	.06	"	.06¼
Underwear Cutters, Bleached	.06¼	"	.06¾
Underwear Cutters, Unbleached	.05¾	"	.06
Silesias No. 1	.06	"	.06¾
New Black Silesias	.03	"	.03½
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached	.06½	"	.06¾
Blue Cheviots	.05½	"	.06
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.02¾	"	.03
O. D. Khaki	.03½	"	.03¾
Corduroy	.03¼	"	.03¾
New Canvas	.06¼	"	.06¾
B. V. D. Cuttings	.06¼	"	.06¾

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	●	—
Miscellaneous	3.20	"	—
White No. 2—			
Miscellaneous	2.65	"	—
Twos and Blues, Repacked	2.20	"	—
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—
Miscellaneous	1.80	"	—
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—
No. 2	1.45	"	—
No. 3	1.35	"	—
No. 4	1.25	"	—
No. 5, Quality A	1.35	"	—
Quality B	1.20	"	—
Quality C	.95	"	—
Old Manila Rope	5.75	"	—

*OPA Maximum Prices.

Foreign Rags

(F. o. b Boston)

Canvas	(nominal)
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No. 1 Hard White Shavings, unruled	2.87½	"	—
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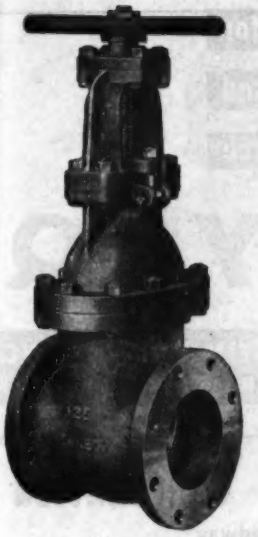
No. 1 White Ledger	2.30	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	1.10	"	—
No. 1 News	1.00	"	—
No. 1 Mixed Paper	.95	"	—
No. 1 Roofing Rags	1.55	"	—
No. 1 Roofing Bags	1.45	"	—



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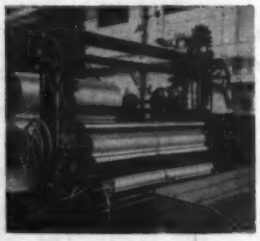

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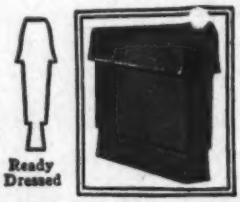

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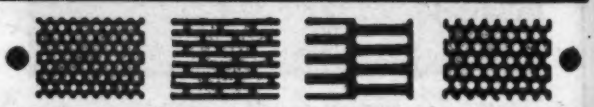

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TO COMPANY PRESIDENTS:

Here's Another BIG CHANCE FOR YOU to "Pass the Ammunition!"

Today—thanks largely to you and other industrial executives—22,000,000 civilian workers are speeding victory and achieving postwar security through the Payroll Savings Plan. Over 60% of the 6th War Loan subscriptions came from this source—and, between drives, this forward-looking plan has been responsible for 3 out of 4 War Bond sales!

Good as this record is, the Payroll Savings Plan can be still more effective. Believing this can best be accomplished by giving Bond buyers a definite idea of the many benefits accruing to them, the War Finance Division has prepared a variety of active aids for employee education.

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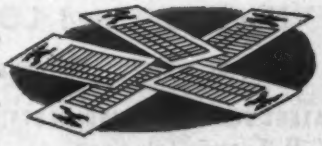
c—Attractive, handy War Bond envelopes, enabling Bond holders to note each separate purchase—and the specific purpose for which each Bond or group of Bonds was bought.



Passing this particular ammunition requires that you reappraise your own company's Payroll Savings Plan. Have your own War Bond Chairman contact the local War Finance Committee—today! They will welcome the chance to discuss this new program with you.

The Treasury Department acknowledges with appreciation the publication of this message by

PAPER TRADE JOURNAL

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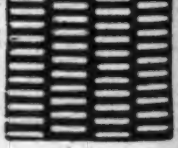

Assistant Editor to be trained as editor for industrial publication, acknowledged leader in its field. Experience in editorial make up and ability to judge worth of news are requisites. Some knowledge of the paper industry is advantageous.

Give all details, salary, experience, education, etc.

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Care Paper Trade Journal

M-22

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For the Paper Manufacturer
Produced By
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Builder of High Speed Bag Machines
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- The "FAST THREADED" screw stem and ball bearing speeds valve operation.
- The packing box is extra deep, is adjustable and provided with specialized lubricated packings and special type gland and compression bolts.
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- Replaceable gate edge shoes are used in valves 10" and larger. These shoes are of special value when valves are installed stem and pipe horizontal.

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How To Save Time and Work in Cleaning Beaters

Fast-working, efficient, extremely economical . . . that is what other mills say about this speedy method for removing slime, pitch and other deposits from beaters.

All you need are (1) recommended Oakite solution, (2) the Oakite Steam Gun, and (3) your regular steam supply. The TRIPLE combination of effective Oakite detergent action, heat and mechanical force completely removes deposits speedily, easily. The Oakite Solution-Lifting Steam Gun, Model 384, has many other uses in your mill, such as cleaning save-alls, screens, and other equipment.

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An unusually attractive position is offered by a large, middle-west carton company. The man we want must be a thorough executive with a complete background of all phases of manufacture and an excellent record of achievement. He will take full charge of planning and production. Remuneration will be in five figures, including a profit-sharing bonus.

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Chemical manufacturer has opening for a man with broad experience in the pulp and paper industry and preferably with graduate training in chemistry. Experience in the paper converting, synthetic resins or plastics fields would be helpful. Excellent opportunity for a man capable of conducting and supervising important development work.

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A large eastern folding carton manufacturer offers an exceptional opportunity for present and future advancement to a man qualified to take complete charge of its maintenance work. Because of post-war future, involving large expansion program, we believe that this position offers greatest compensation.

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HELP WANTED

WANTED

Experienced Paper Mill electrician. Must be familiar with Modern D. C. Sectional Drives, Synchronous Motors and Controls, and Power House Equipment. Rate of pay, $1.25 hour, 40 hour work-week. Good chance for advancement. Reply Box No. 44 care Paper Trade Journal. M-29

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SALESMAN—With paper maker or paper chemistry background. Splendid opportunity with alert organization for man with initiative. Give all details in reply to Box 45-139 care Paper Trade Journal. M-29

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SUPERINTENDENT—Experienced, Self Opening, Squares, Flats, Sacks, Specialties. To take full charge of Bag Plant. Give full data. Address Box 45-126 care Paper Trade Journal. M-22

WANTED MEN—Experienced in paper converting. Starting additional plant for cutting, laminating, coating and shredding in central Indiana. Essential work. State age, experience and salary expected. Address Box 45-157 care Paper Trade Journal. M-22

MIDWEST MANUFACTURER of ordnance, waxed and specialty papers, desires research chemist and chemical engineer for technical development and control. Knowledge of waxes, resins and cellulose derivatives preferred but not essential. Excellent post war future with established firm. W.M.C. referral necessary. Expenses paid for midwest interview. Address Box 45-159 care Paper Trade Journal. M-22

PLANT MANAGER—Established Philadelphia Plant making high quality bags (self-opening, squares, flats, sacks, specialties) wants plant manager experienced in handling production and personnel in union shop. Exceptional opportunity for advancement. Give full qualifications, age and draft status. Replies held in strictest confidence. Address Box 45-167 care Paper Trade Journal. M-29

WANTED—A Tour Boss for midwest jute mill. Must have practical operating experience on cylinder machine. Address Box 45-177 care Paper Trade Journal. M-22

WANTED—A superintendent for a midwest jute mill—125 ton cylinder machine. Responsible for stock preparation, finishing, shipping, maintenance of equipment. Please detail experience, salary expected in confidence. Address Box 45-176 care Paper Trade Journal. M-22

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PRODUCTION MAN—Thoroughly experienced in production and supervision all varieties fine cardboards. Successful record personnel relations. Address Box 45-4 care Paper Trade Journal. M-29

MANAGER—Toilet Paper Converting Plant. Will furnish more details to interested parties. Address Box 45-106 care Paper Trade Journal. M-22

FINISHING AND SHIPPING SUPT.—College man will consider change. Is energetic and a good executive. Will guarantee results as to output, reduction of waste, best use of manpower and operational costs. Prefers northern location. Address Box 45-130 care Paper Trade Journal. A-5

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PRACTICAL TOUR FOREMAN or Machine Tender on high grade folding boards, sulphite and groundwood specialties, test liner, etc. Address Box 45-171 care Paper Trade Journal. M-29

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WHERE?—From firms long in the field and full of the necessary "know how."

WHO?—Black-Clawson, Shartle, Dilts, largest supplier group in the world.

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POST-WAR VERSION

FOR SALE

2—10" diameter x 119" face new calender rolls.
1—24" diameter x 136" face Downingtown extractor roll.
1—24" diameter x 120" face Downingtown extractor roll—can cut down.
1—22" diameter x 133" face brass covered press roll.
1—22" x 135" face brass covered press roll.
1—22" x 132" rubber covered press roll.
13—7" diameter x 139" copper covered felt rolls.
2—128" wide Vickery felt conditioners—can cut down.
1—#3 Nash vacuum pump.
2—10 x 15 Moore & White triplex stuff pumps.

SHARTLE BROTHERS MACHINE CO.
Middletown, Ohio M-22

1—40" tablecloth printing embossing and folding unit
1—automatic chopholder machine manufacturing the product from the roll
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1—Lewellen Mfg. Co. speed reducer, size 9 class E4-1, Ser. No. 2098

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1—#1 Nash vacuum pump
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B-6

FOR SALE—12 pound and 30 pound laboratory beaters complete with motor drive two 1000 gallon vertical propeller agitated steel tanks. Address Box 45-175 care Paper Trade Journal. M-22

FOR SALE—38" Oswego Automatic Clamp Cutter, fully rebuilt and guaranteed. Address Box 45-183 care Paper Trade Journal. M-22

FOR SALE—2 NEW BRANDON'S TRIUMPH — 3 PLY — CANVAS DRIER FELTS — 64 YDS. X 76" EACH. Address Box 45-178 care Paper Trade Journal. M-22

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FOR SALE

by JACK ROSS 17 Porter Avenue, Newark 8, N. J.

Waverly 3-5675

1—72" Cameron Slitter and Rewinder; #10 Camachine with mill roll stand rewind with 36" diameter. Excellent condition. Used four years.
1—64" Waxing Machine complete with vats unwind and rewind with drying rolls manufactured by Mayer Coating Machine Co., Rochester. Excellent condition. Used three years.
3—Improved Paper Machy. Corp. #2 Knotters Bronze fitted. Good condition. Prints on request.
1—#2 Miami Jordans ⅛" brnze fillings for direct connection to motor.
1—65 ton Vertical Lime Kiln.
4—14 x 20 Connersville Pumps.
3—12 x 48 Connersville Pumps.
These pumps are fully rebuilt.
1—Downingtown 2500 lb. Iron Tub Cyclone Beater. Beater rolls 60" face, 72" diameter. This beater is in excellent condition, having been in operation less than 2 years. Prints on request.
M-22

FOR SALE—Waxing Machine 50" wide. Will wax wet wax paper and dry wax. Cold water cylinders. $1000 including motor. Address Box 45-162 care Paper Trade Journal. M-29

FOR SALE—1—Ten roll 158" Farrell calender, bottom roll 28" dia., two 18" dia., one 14" dia. and six 13", rolls ground and in crates. FRANK H. DAVIS COMPANY, 175 Richdale Ave., Cambridge, 40, Mass. A-5

FOR SALE—Used carton forming machine, adjustable, 3 ft. bed. Address Box 45-173 care Paper Trade Journal. M-22

FOR SALE

2—#5 Bird Save-alls.
1—120" Fourdrinier Wet End.
1—68" Drilled Face Suction Press Roll.
1—Packer Type 14 Plate Flat Screen—with Witham Fasteners and scraping device—plates .022 cut.
1—#9 Emerson Jordan for direct connection to a motor, requires use of 400 H.P. motor.
1—Shartle Brothers Duplex 10 x 20 Stock Pump.
1—Moore & White 10 x 12 Triplex Stock Pump.
2—2000 lb. Holyoke Beaters.
1—1200 lb. Stout, Mills & Temple Beater.
2—Jones pulpers — direct connected to 60 H.P. motors.
18—Dryers — 36" diameter x 94" face — complete with two deck frames, etc.
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1—60" Kidder Slitter & Winder.
1—#4 Roots-Connersville Vacuum Pump.

Various sizes of Certifugal Pumps. Write us regarding your particular requirements.

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Bigelow 3-3720 M-22

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45" Standard Beck Rotary Sheet Cutter.
62" Moore & White Rotary Sheet Cutter.
1—Noble & Wood Mammoth Jordan with new shell and plug fillings.
1—Standard Horne Jordan with extra shell and plug fillings.
1—Lewis-Shepard Master Stacker with 10' lift. Platform 24" x 36".
3—Double-drum Warren Winders, 82", 103" and 104" wide.
1—Double-drum Bagley & Sewall Winder, 140" wide.
1—F. X. Hooper Single Color Printing and Slotting Machine, sizes 36" x 81". A-1 condition.
1—64" Mayer Equalizer Type Waxing and Coating Machine.

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TF

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5 Four-pocket Sandy-Hill pulp grinders each with 1000 H.P., 2300 volt motor, 60" diameter x 27" Carborundum stone, lathe, and temperature control.

1 Four-pocket Carthage Machine Company pulp grinder with 1000 H.P., 2300 volt synchronous motor, anti-friction bearings, lathes, and temperature control.

Priced to Move Quick.

SHARTLE BROTHERS MACHINE CO.
Middletown, Ohio
A-5

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65" Clark Sheeter with Erie Layboy and 16 roll backstand.
110" Hamblet Sheeter with 3 slitters and 4-roll backstand.
45" White Automatic Power Cutter.
68" Rice Barton & Fales Slitter & Rewinder, for use on dry end of paper machine.
63" Oswego Mill Type Cutter.

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TF

FOR SALE—1 Hamilton-Corliss Variable Speed Twin Engine, size of cylinders 12" x 24". Also Triple-Deck Frames for ninety 36" dryers, any width. The Chesapeake Paperboard Co., Baltimore, 30, Md. TF

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From single items to complete plants.
Write, telephone or wire whatever you have for sale.

FOR SALE

FOR SALE

1—60 H. P. Fairbanks Morse Deisel Engine, connected to a 40 K.V.A. Generator.
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1—50 H.P. Ames Economy Type Boiler.
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J. J. ROSS COMPANY
250 Frelinghuysen Ave., Newark 5, N. J.
Bigelow 3-3720
M-22

WANTED

WANTED

One (1) Laboratory Beater
Waterbury Hydraulic Drive size 5
11—60" Diameter x 92" Face Dryers
16—48" Diameter x 92" Face Dryers
4—36" Diameter x 92" Face Dryers

with gears, frames, felt rolls and cone pulley drives. Address Box 44-708 care Paper Trade Journal. TF

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CALENDER STOCK—10" INTERMEDIATE ROLL MINIMUM
ALSO
SHEETER—SINGLE OR DOUBLE CUT-OFF
BOTH FOR 72" MACHINE

Address Box 44-728 care Paper Trade Journal. TF

WANTED

WANTED

One Beater of 1,000 lb. capacity. Give complete description, specifications and price.

FOR SALE

42 Dryers consisting of 85" and 86" face — 36" diameter, complete with triple deck stands, gears, bearings and piping.

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Garfield, New Jersey
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To take approx. 20" wide sheet. Capable of laminating cellophane in 16 pt. board or a machine that will laminate enamel stock onto box board. Write full particulars, price, delivery, etc. (Address Box 45-179, Paper Trade Journal.) M-22

WANTED—Brightwood Box Machine. Address Box 44-836 care Paper Trade Journal. tf

WANTED

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WANTED—#1 and #2 Nash Vacuum Pumps. Address Fort Howard Paper Company, Green Bay, Wisconsin. M-29

WANTED—Waxing Machine and slitter-rewinder for waxed paper. Must be in good condition. Address Box 45-168 care Paper Trade Journal. M-29

WANTED TO PURCHASE—Bronze jacketed couch roll, 22 inches in diameter, 137 inch minimum, 140 inch maximum face. Fort Howard Paper Company, Green Bay, Wis. A-5

WANTED—72" or 84" Hamblet Sheeter. A duplex 72" to 84" slitter and rewinder. Give full description and price delivered. Address Box 45-180 care Paper Trade Journal. M-22

WANTED TO PURCHASE—Converting plant or machinery for converting paper goods. Address Box 45-174 care Paper Trade Journal. M-29

WANTED—Die Press—Sheridan or Seybold. Also Shredding Machine. Address Box 45-182 care Paper Trade Journal. M-22

WANTED—Any Item of Paper Tube and Paper Can Machinery. Slitters, Tube Winders, Cutters, etc. etc. We will buy such machinery in any condition. Theo. Adams, 111 W. Washington St., Chicago, 2, Ill. TF

WANTED—W & P Shredders, Evaporators, Generators and Boilers, Slitters, Cutters, Hydraulic Presses, Sheridan Presses, Dryers. Address Box 44-835 care Paper Trade Journal. tf

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Norton Co.

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Stein, Hall & Co., Inc.
United States Rubber Co.

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Valley Iron Works Co.

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Weber, Herman G.

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Carthage Machine Co.
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Valley Iron Works Co.

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Simonds Worden White Co.
Valley Iron Works Co.

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SKF Industries Inc.
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Valley Iron Works Co.
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Dilts Machine Works, Inc.
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Smith & Winchester Mfg. Co.
Valley Iron Works

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Farrel-Birmingham Co., Inc.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Simonds Worden White Co.
Valley Iron Works Co.

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The Cincinnati Rubber Mfg. Co.
The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.
J. E. Rhoads & Sons
United States Rubber Co.
T. B. Wood's Sons Company
Worthington Pump & Machinery Corp.

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Niagara Alkali Co.
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Pennsylvania Salt Co.
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Shartle Brothers Machine Co.

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Moore & White Co.
Murray Mfg. Co., D. J.
Walworth Company
Valley Iron Works Co.

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Kalamazoo Tank & Silo Co.

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Lobdell Car Wheel Co.
Moore & White Co.
Perkins & Son, Inc., B. F.
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The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works
Waldron Corp., John

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Black-Clawson Company
Dilts Machine Works
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Fort Pitt Steel Casting Co., Div. H. K. Porter Company, Inc.
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Grinnel Company
Hamblet Machine Co.
E. D. Jones & Sons Co.
Lobdell Car Wheel Co.
Magnus Metal Corp.
Montague Machine Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Shenango-Penn Mold Co.
Smith & Winchester Mfg. Co.
Traylor Engineering & Mfg. Co.
Union Machine Company
Union Screen Plate Co.
Valley Iron Works Co.
Walworth Company

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De Laval Steam Turbine Co.
Nichols Engrg. & Research Corp.
Ross J. O. Eng. Co.
Shartle Brothers Machine Co.

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Ansul Chemical Co.
Calco Chemical Co.
Diamond Alkali o.
Dispersion Process Inc.
Dow Chemical Company
E. I. du Pont de Nemours & Co., Inc.
General Dyestuff Corp.
Geigy Co., Inc.
Gotteaman & Co.
Hooker Electrochemical Company
The Mathieson Alkali Works, Inc.
Monsanto Chemical Company
The Neville Company
National Oil Products Co.
Naugatuck Chemical Div. of U. S. Rubber Co.
Niagara Alkali Company
Paper Makers Chemical Department, Hercules Powder Co.
Pennsylvania Salt Mfg. Co.
Pioneer Salt Company
Pittsburgh Plate Glass Co., Columbia Chemical Division
Solvay Sales Corp.
Stauffer Chemical Company
United States Rubber Co.
Witco Chemical Co.
Wyandotte Chemicals Corp.

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Bird Machine Co.
E. I. du Pont de Nemours & Co., Inc.
Oakite Products, Inc.
Paper Makers Chemical Department, Hercules Powder Co.
Magnus Chemical Co.
Nichols Engrg. & Research Corp.
Pennsylvania Salt Mfg. Co.
Philadelphia Quartz Co.
Pittsburgh Plate Glass Co., Columbia Chemical Division
Solvay Sales Corp.
Wyandotte Chemicals Corp.
J. B. Ford Division

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Black-Clawson Company
Hudson Sharp Machine Company
Farrel-Birmingham Co.
Fawick Airflex Co., Inc.
Horton Manufacturing Co.
Rodney Hunt Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
Smarns Magnetic Mfg. Co.
Valley Iron Works Co.
T. B. Wood's Sons Company

COATING MACHINERY
Hudson Sharp Machine Company
Moore & White Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.
Waldron Corporation, John
Weber, Herman G.

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Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
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Ferguson, Hardy S.
Hardy, George F.
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Merritt-Chapman & Scott Corp.
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J. E. Sirrine & Co.
Stone & Webster Engrg. Corp.

CONVEYORS
Black-Clawson Company
Murray, D. J. Mfg. Co.
Ross Engineering Corp., J. O.

CORES
Elixman Paper Co.
Sonoco Products Co.
Rodney Hunt Machine Co.
Montague Machine Co.
Smith & Winchester Mfg. Co.
Walker-Goulard-Plahn Co.

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Black-Clawson Company
De Laval Steam Turbine Co.
Farrel-Birmingham Co., Inc.
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E. D. Jones & Sons Co.
Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works
Waldron Corp., John
Westinghouse Electric Mfg. Co.
T. B. Wood's Sons Company

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Noble & Wood Mach. Co.
Perkins & Son, Inc., B. F.
The Smith & Winchester Mfg. Co.
Taylor Stiles & Co.

DAMPENERS
Perkins & Son, Inc., B. F.
Valley Iron Works Co.

DE-INKING
Kinsley Chemical Co.

DIGESTERS
The Bigge Boiler Works Co.
H. K. Porter Company Inc.
Pusey & Jones Corp.

DOCTORS
Bird Machine Company
Black-Clawson Company
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Lobdell Co.
Montague Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

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Black-Clawson Company
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Rotogravure Engrg. Co.
The Sandy Hill Iron & Brass Works
Simonds Worden White Co.
Shartle Brothers
United States Rubber Co.
Westinghouse Electric & Manufacturing Company

DRIERS
Black-Clawson Company
Murray Mfg. Co., D. J.
J. J. Ross Company
Ross, J. O. Engineering Corp.
Rotogravure Engrg. Co.
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Shartle Brothers Machine Co.
Traylor Engineering & Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

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Bird Machine Co.
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Valley Iron Works Co.
Westinghouse Electric & Manufacturing Company

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Robinson, C. P.
United States Rubber Co.

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Oliver United Filters
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Waldron Corp., John

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Samuel C. Rogers and Company
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Simonds Worden White Co.
United States Rubber Co.

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Noble & Wood Machine Co.
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Shartle Brothers Machine Co.
Valley Iron Works Co.
Worthington Pump & Mchy Corp.

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Dilts Machine Works
Rodney Hunt Machine Co.
Ingersoll-Rand Co.
E. D. Jones &Sons Co.

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United States Rubber Co.

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Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

KNIVES
Black-Clawson Company
Dilts Machine Works, Inc.
Hamblet Machine Co.
E. D. Jones & Sons Co.
Simonds Worden White Co.
Valley Iron Works Co.

LABORATORY EQUIPMENT
Appleton Machine Co.
W. H. & L. D. Betz
Dilts Machine Works
E. D. Jones & Sons Co.
Leeds & Northrup Company
National Technical Laboratories
Noble & Wood Machine Co.
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Taylor Instrument Companies
Valley Iron Works Co.

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Hamblet Machine Co.
Moore & White Co.
Shartle Brothers

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Gulf Refining Co.
Sinclair Refining Co.
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The Spray Engineering Co.

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General Electric Co.
Ingersoll-Rand Co.
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Westinghouse Electric & Manufacturing Company

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Shartle Brothers Machine Co.

PACKING
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
United States Rubber Co.

PAPER MACHINES
Black-Clawson Company
Downingtown Mfg. Co.
Thomas W. Hall Co.
Moore & White Co.
Pusey & Jones
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester

PAPER MACHINE SLICES
Black-Clawson Company
E. D. Jones & Sons Co.
Montague Machine Co.
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.

PAPER TUBE MACHINERY
Dietz Machine Works
Thomas W. Hall Co.
Hudson Sharp Machine Company
Langston Co., Samuel M.

PASTING MACHINES
Black-Clawson Company
Davis, Frank H., Co.
Murray, D. J., Mfg. Co.
Moore & White Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Waldron Corp., John

PERFORATED METAL
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Harrington & King Perforating Co.
Hendrick Mfg. Co.

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Black-Clawson Company
Crane Company
Grinnell Company
Shartle Brothers Machine Co.
Taylor Forge & Pipe Works
Walworth Company
Youngstown Welding & Engrg. Co.

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Perkins & Son, Inc., B. F.

PLATES
Black-Clawson Company
Hendrick Mfg. Co.
Klemp, W. F., Co.
J. O. Ross Engrg. Corp.
Shartle Brothers Machine Co.
Timken Roller Bearing Co.

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Black-Clawson Company
E. D. Jones & Sons Co.
The Noble & Wood Machine Co.
The Richardson Economy Plug Co.
Shartle Brothers Machine Co.

PRESSES
Black-Clawson Company
Farrel-Birmingham Co.
Dietz Machine Wks.
Thomas W. Hall Co.
Hudson-Sharp Machine Co.
Paper Converting Machine Co., Inc.
Potdevin Machine Co.
Rotogravure Engineering Co.
Shartle Brothers
Valley Iron Works Co.
Waldron Corp., John
Weber, Homer C.

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Traylor Engineering & Mfg. Co.

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Bulkley, Dunton Pulp Co., Inc.
Gottesman & Co., Inc.
Perkins-Goodwin Co.
Price & Pierce, Ltd.
Pulp and Paper Trading Co.

PUMPS
Allis-Chalmers Mfg. Co.
Black-Clawson Company
Dorr Company
Downingtown Mfg. Co.
De Laval Steam Turbine Co.
Frederick Iron and Steel Co.
Ingersoll-Rand Co.
Johnson Corp.
Moore & White Co.
Nash Engineering Co.
Noble & Wood Machine Co.
Paper Converting Mch. Co.
Quimby Pump Co. Div. of H. K. Porter Company, Inc.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Warren Steam Pump Company
Worthington Pump & Machinery Corp

RECOVERY SYSTEMS
Bulkley, Dunton Pulp Co., Inc.
Rodney Hunt Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Pusey & Jones
Ross Engineering Corp. J. O.
Valley Iron Works Co.

RECTANGULAR BINS
Traylor Engineering & Mfg. Co.

REELS
Black-Clawson Company
Downingtown Mfg. Co.
De Laval Steam Turbine Co.
Hudson Sharp Machine Company
The Kohler System Company
Montague Machine Co.
Moore & White Co.
Paper Converting Mch. Co.
Rodney Hunt Machine Co.
Rotogravure Engrg. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
The Smith & Winchester Mfg. Co.

REFINERS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
Bauer Brothers Co.
Dilts Machine Works
The Hermann Manufacturing Co.
E. D. Jones & Sons Co.
Murray, D. J. Mfg. Co.
Noble & Wood Machine Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Sprout, Waldron & Co.
Sutherland Refiner Corp.
Valley Iron Works

REGULATORS
Allis-Chalmers Mfg. Co.
Armstrong Machine Works
Bird Machine Company
The Brown Instrument Co.
The Foxboro Company
Jones, E. D., & Sons Co.
General Electric Co.
Johnson Corp.
Leeds & Northrup Company
National Technical Laboratories
Noble & Wood Machine Co.
Shartle Brothers
Taylor Instrument Companies
Wallace & Tiernan
Westinghouse Electric & Manufacturing Company

RESINS
American Cyanamid & Chemical Corp.
The Neville Company
The Resinous Products & Chemical Co.

ROLLS
Appleton Machine Co.
Black-Clawson Company
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Improved Paper Machy. Corp.
Lobdell Co.
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
Montague Machine Co.
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
Perkins, B. F., & Sons Co.
Pusey & Jones Corp.
Roehlen Engraving Co.
J. J. Ross Company
Rodney Hunt Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Shenango-Penn Mold Co.
Sinclair Co.
Smith & Winchester Mfg. Co.
Stearns Magnetic Mfg. Co.
United States Rubber Co.
Valley Iron Works Co.
Waldron Corp., John

ROLL COVERS
The Cincinnati Rubber Mfg. Co.
Youngstown Welding & Engrg. Co.

ROLL STANDS
Cameron Machine Co.
Johnstone Eng. & Machine Co.
The Kohler System Company
Moore & White Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.

ROTARY KILNS
Traylor Engineering & Mfg. Co.

SATURATING MACHINES
Black-Clawson Company
Moore & White Co.
Noble & Wood Machine Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman C.

SCALES
Merrick Scale Mfg. Co.

SCREEN PLATES
Fitchburg Screen Plate Co.
Magnus Metal Corp.
Morey Paper Mill Supply Co.
Union Machine Co.
Union Screen Plate Co.

SCREENS
Allis-Chalmers Mfg. Co.
Appleton Wire Works
Appleton Machine Co.
Bird Machine Company
Carthage Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Harrington & King Perforating Co.
Hendrick Manufacturing Co.
E. D. Jones & Sons Co.
Montague Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Traylor Engineering & Mfg. Co.
Valley Iron Works Co.

SCRUBBERS
Traylor Engineering & Mfg. Co.

SHEET MACHINES
Thomas W. Hall Co.
The Hermann Manufacturing Co.
Noble & Wood Machine Co.
Rotogravure Engrg. Co.
Valley Iron Works Co.

SHOWER PIPES
Bird Machine Company
A. E. Broughton & Co.
Downingtown Mfg. Co.
Improved Paper Machy. Corp.
Moore & White Co.
Shartle Bros. Mach. Co.
Smith & Winchester Mfg. Co.

SHREDDERS
Bauer Brothers Co.
Carthage Machine Co.

SIZING
American Cyanamid & Chemical Co.
Black-Clawson Company
The Dow Chemical Co.
du Pont, E. I., de Nemours & Co.
National Oil Products Co.
Paper Makers Chemical Department, Hercules Powder Co.
Pioneer Salt Company
Socony-Vacuum Co.
Philadelphia Quartz Co.

SLITTERS
Black-Clawson Company
Cameron Machine Co.
Carthage Machine Co.
Dietz Machine Works
Downingtown Mfg. Co.
Thomas W. Hall Co., Inc.
Hamblet Machine Co.
Hudson Sharp Machine Company
Johnstone Eng. & Machine Co.
Langston Co., Samuel M.
Moore & White Co.
D. J. Murray Mfg. Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Simonds Worden White Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

SPRAY NOZZLES
The Spray Engineering Co.

STARCH
American Cyanamid & Chemical Corp.
Clinton Co.
National Starch Products, Inc.
Stein, Hall & Co., Inc.

WHERE TO BUY

STEAM SPECIALTIES
Johnson Corp.
Shartle Bros. Mch. Co.
Stickle Steam Specialties Co.

STRAPPING & STRAPPING MACHINES
The Stanley Works

STUFF CHESTS
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

SUCTION BOXES
Black-Clawson Company
A. E. Broughton & Co.
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Westinghouse Electric & Manufacturing Company.

SULPHUR
American Cyanamid & Chemical Corp.
Stauffer Chemical Company
Texas Gulf Sulphur Co.
Witco Chemical Company

SULPHUR BURNERS
Valley Iron Works Co.

TALC
American Cyanamid & Chemical Corp.
W. H. Loomis Talc Corp.
International Talc Company

TANKS
Frederick Mfg. Co.
E. D. Jones & Sons Co.
Kalamazoo Tank & Silo Co.
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
The Noble & Wood Machine Co.
H. K. Porter Company Inc.
Rodney Hunt
J. O. Ross Engrg. Corp.
Shartle Brothers Machine Co.

Taylor Engineering & Mfg. Co.
United States Rubber Co.
Waldron Corp., John
Youngstown Welding & Engrg. Co.

THICKENERS, DECKERS & SAVEALLS
Bird Machine Company
Bulkley, Dunton Pulp Co. Inc.
Carthage Machine Co.
Dilts Machine Works
Dorr Co.
Downingtown Mfg. Co.
Montague Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

TITANIUM
E. I. Du Pont de Nemours & Co.
Titanium Pigment Co.
R. T. Vanderbilt Co.
Witco Chemical Company

TOOLS
Acme Steel Company
Ingersoll-Rand Co.
The Stanley Works
Walworth Company

TRUCKS
Elwell Parker Electric Co.
Wright-Hibbard Ind. Elec. Truck Co.

TRAPS
Armstrong Machine Works
Crane Co.
Grinnel Company
Johnson Corporation
Shartle Bros. Mch. Co.

TUBS
Rodney Hunt Machine Co.
Noble & Wood Machine Co.
Shartle Brothers
Valley Iron Works Co.

TURBINES
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
General Electric Company
Hunt, Rodney, Mach. Co.
Westinghouse Electric & Manufacturing Company
Worthington Pump & Machinery Corp.

USED EQUIPMENT
Frank H. Davis Company
Gibbs-Brower Co.
Thomas W. Hall Co.
Noble & Wood Machine Co.
Rotogravure Engrg. Co.
J. J. Ross Company
Shartle Brothers Machine Co.

VALVES
Crane Company
Dilts Machine Works
The Foxboro Company
Hills-McCanna Co.
E. D. Jones & Sons Co.
Kennedy Valve Mfg. Co.
Magnus Metal Corp.
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
The Permutit Company
William Powell Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Taylor Instrument Companies
Valley Iron Works Co.
Walworth Company

VATS & VAT PARTS
Union Machine Co.
Union Screen Plate Co.

WASHERS
Bird Machine Company
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Works
Rodney Hunt Machine Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

WATER CONDITIONING
The Permutit Company

WAXING MACHINERY
Black-Clawson Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

WELDING EQUIPMENT
Allis-Chalmers Mfg. Co.
General Electric Company
Walworth Company
Westinghouse Electric & Manufacturing Company

WET MACHINES
Black-Clawson Co.
Carthage Machine Co.
Downingtown Mfg. Co.
Moore & White Co.
Montague Machine Co.
Noble & Wood Machine Co.
Pusey & Jones Corp.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

WINDERS AND REWINDERS
Black-Clawson Company
Cameron Machine Co.
Dietz Machine Works
Downingtown Mfg. Co.
Thomas W. Hall Co.
Hudson-Sharp Mach. Co.
Langston Co., Samuel M.
Johnstone Eng. & Machine Co.
The Kohler System Company
Montague Machine Co.
Moore & White Co.
Paper Converting Mch. Co.
Potdevin Machine Co.
Pusey & Jones Corp.
Rotogravure Engrg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Waldron Corp., John

WIRES
Appleton Wire Works
Black-Clawson Company
Bulkley, Dunton Pulp Co. Inc.
Cheney Bigelow Wire Works
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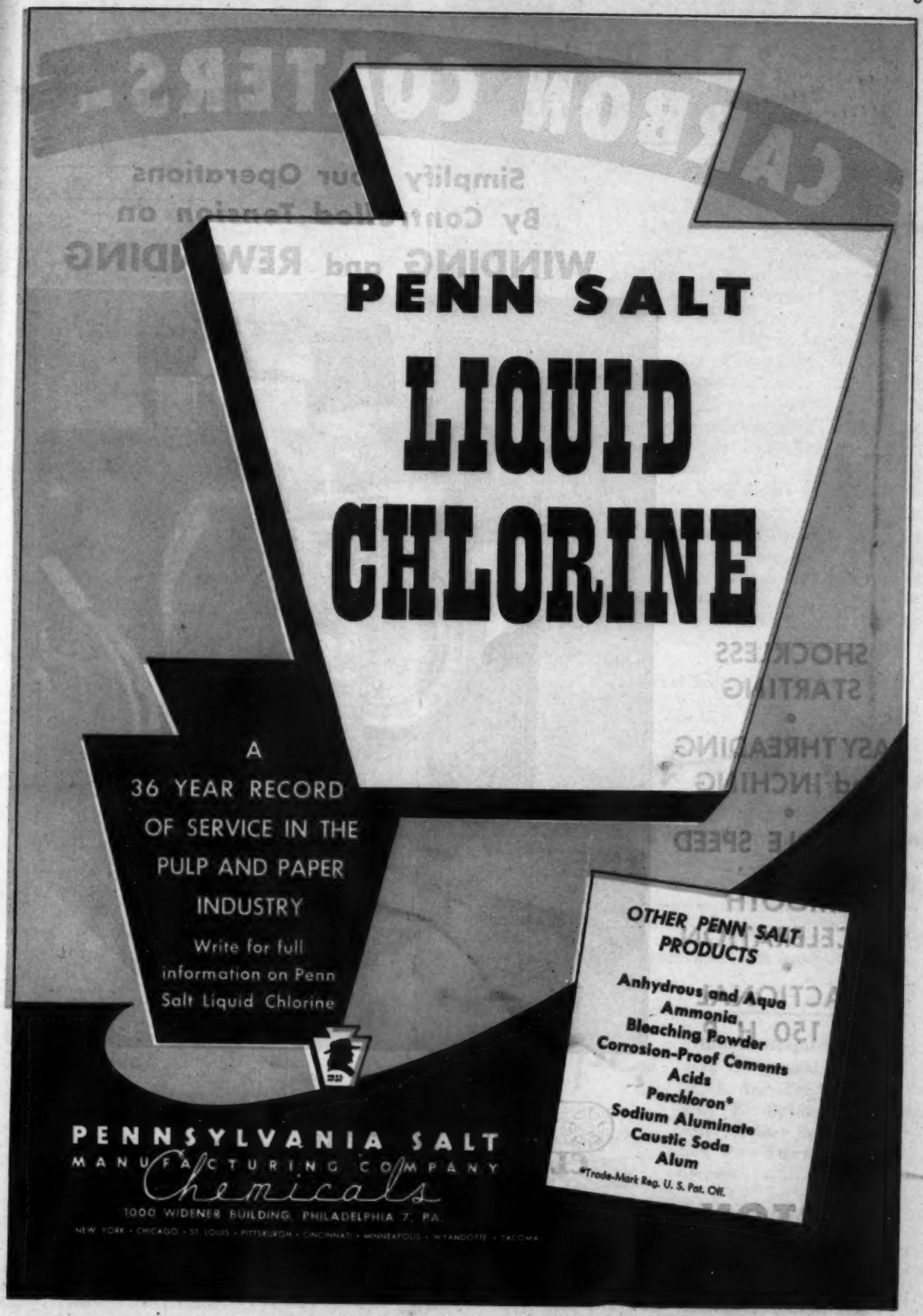
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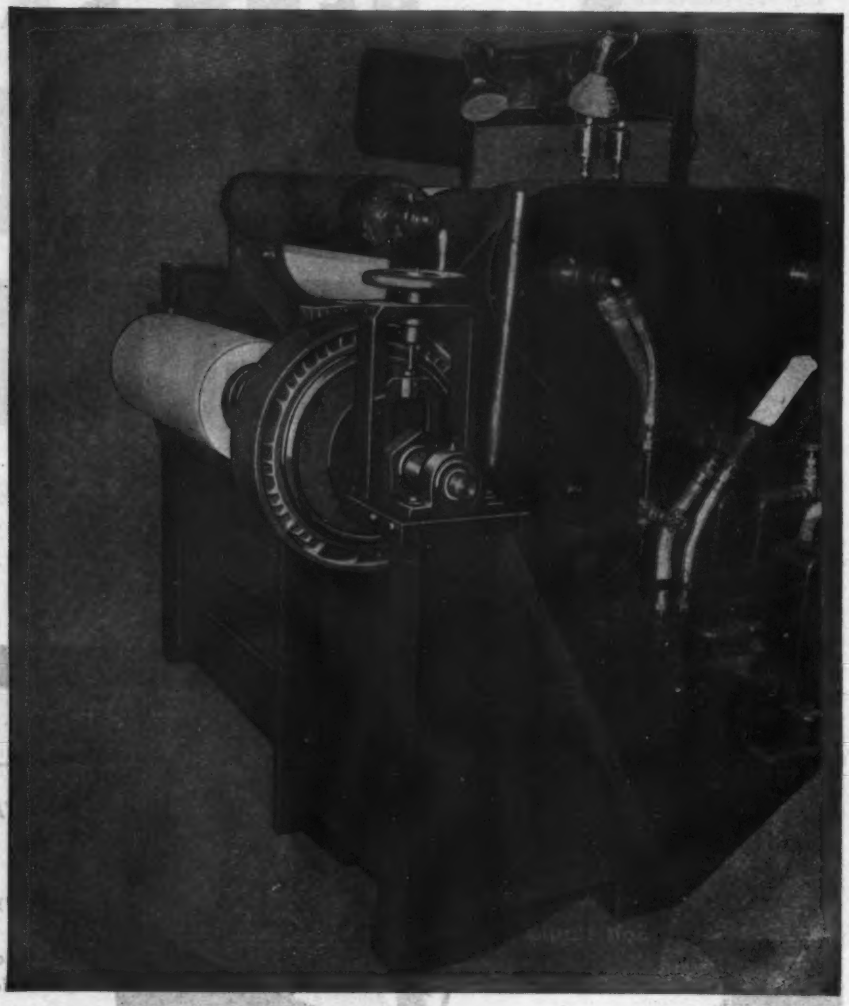

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